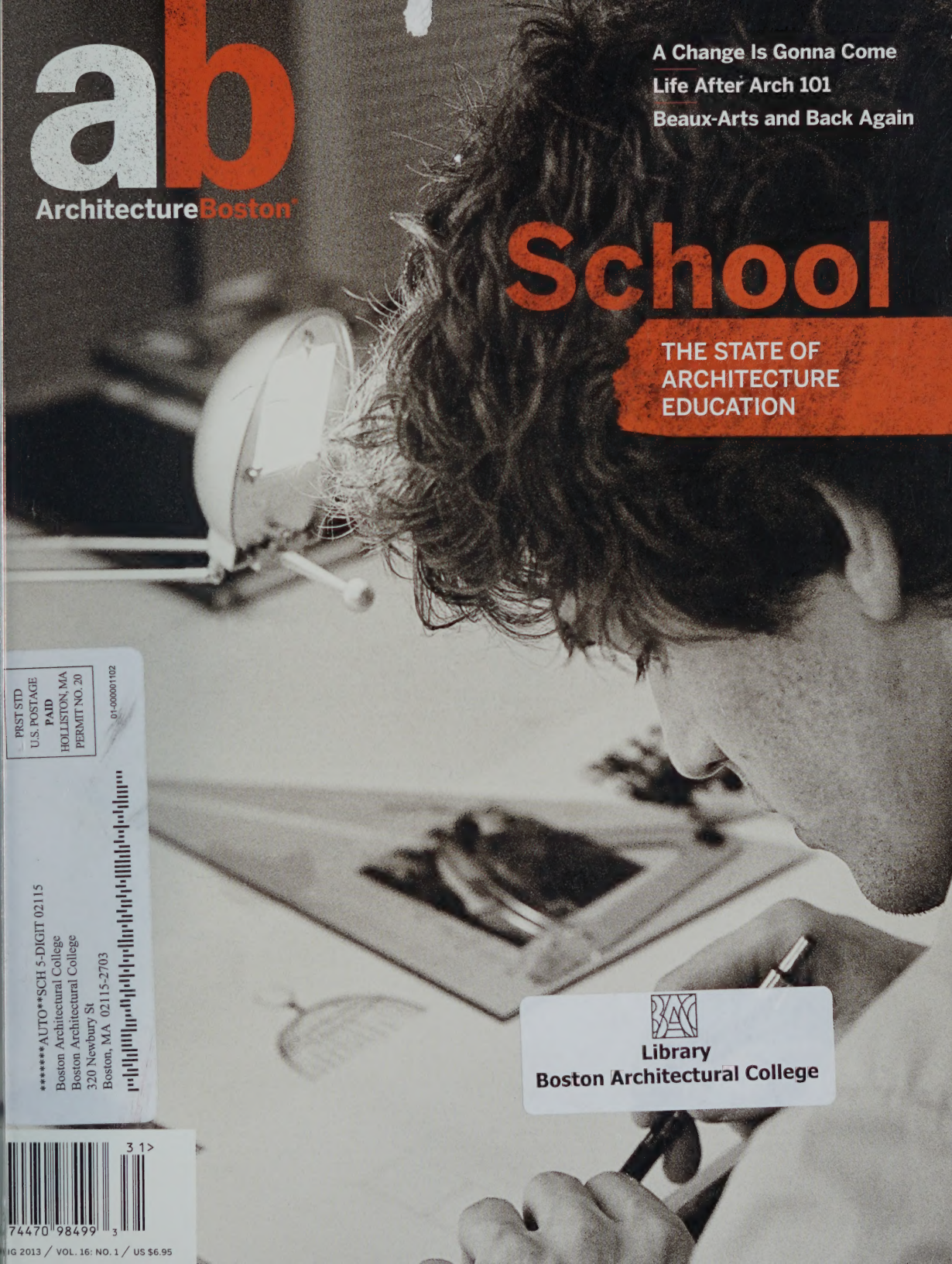
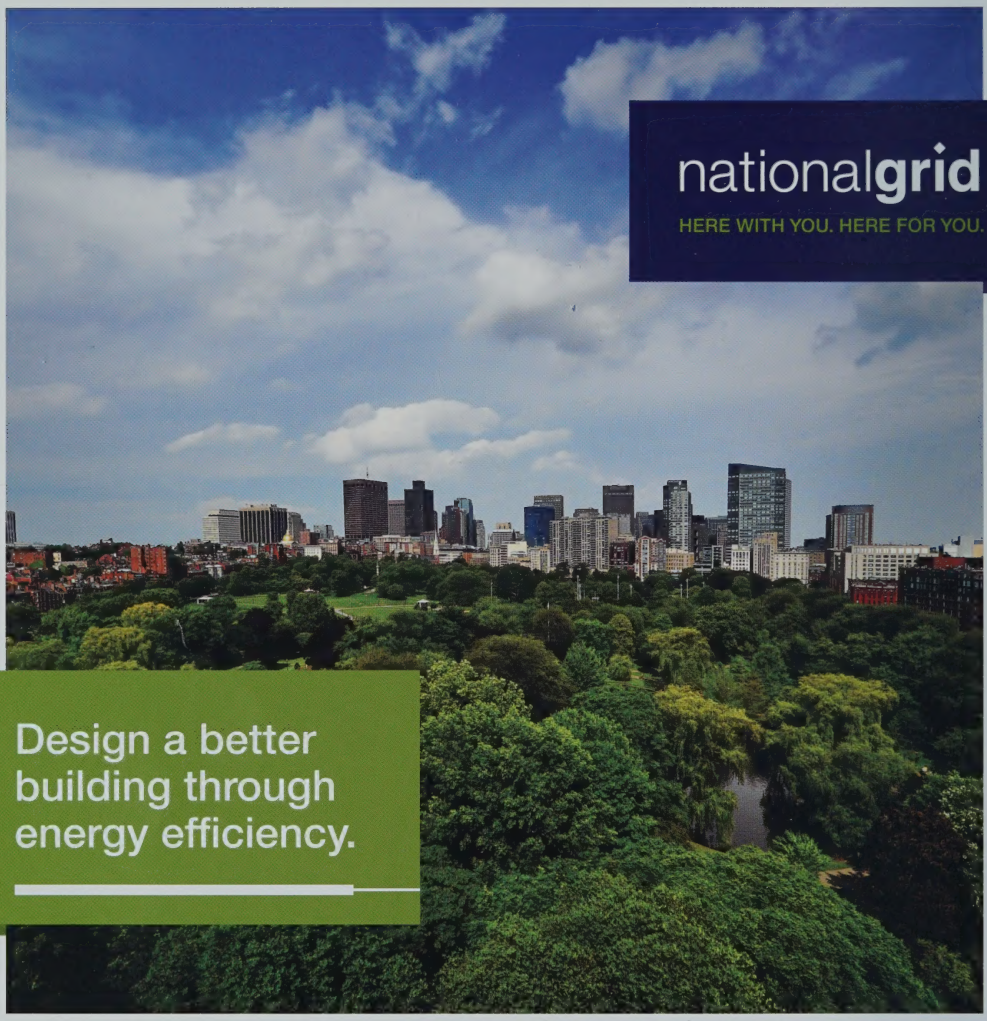
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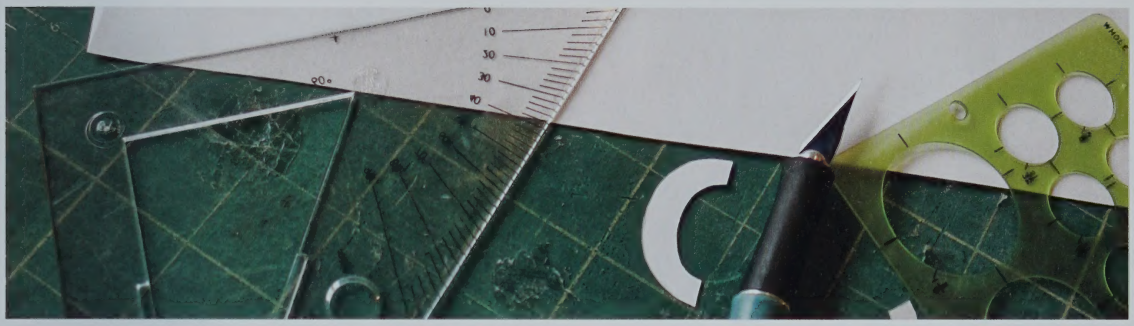


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ABOVE
Photo: Kyle Nelson

COVER
Alexander Turner, working on a final undergraduate design submission, at the School of Architecture, University of Liverpool, UK, May 2010. Photo: Sophie Determann.

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Don't Know Much About Masonry

Journalism school taught me many things: how to write in the active voice; the difference between verification and assertion; to let the facts speak for themselves. But possibly the most important thing I learned in journalism school is that everything is a story.

Sometime around graduation, I started to see the whole world framed by headlines. My mind clicked on people and situations like a promiscuous camera: The harbor channel where stolen cars go to die? Story! The unlikely friendship between two fierce political rivals? Story! The drug rehab program that's really a front for an insidious cult? Wicked good story!

This same sort of reorientation occurs with many architecture students, or at least the lucky ones. A new way of seeing steals over them, and all at once ordinary buildings and streets are studies in symmetry or scale, good circulation or poor wayfinding, economic revitalization, or just how sunlight strikes concrete at different times of day.

It's this moment of thrilling new awareness, hard to capture and harder to sustain, that a good education creates. This issue of *ArchitectureBoston* examines how well today's schools are preparing young architects to meet 21st-century challenges—disruptive technology, climate change, social fragmentation—but also how well they promote that ineffable joy of discovery.

Better still, for journalists and architects alike, is the knowledge that their pretty new skills can make a better world. Thanks to that Story! the abandoned lot gets cleaned up. The desperately ill child finds a liver donor. People caught in Kafkaesque legal or social webs find justice.

So, too, architects can improve the design of private buildings and public spaces, but they also can advance broader social, economic, and environmental goals. The graduate students Gretchen Schneider interviews in "Design for Dignity" (page 36) understand that good design can bring order, well-being, even peace into people's lives. These students want to change the world no less than the activists of the 1960s, and they are driving architecture schools to offer more public-spirited curricula.

When she died in January, the great critic Ada Louise Huxtable was memorialized in *The New York Times* for her ability to see a building "as a public statement whose form and placement had real consequences for its neighbors as well as its occupants." Architecture, she often said, is about more than buildings.

Architecture is also about more than architecture. A striking conclusion from the discussion starting on page 22 with firm principals looking to hire architecture graduates is how much they are resisting overspecialization. They want young designers who can visualize, render, and compute with precision, of course, but they also want to see varied life experience, a grounding in the liberal arts, travel—a broad range of social interactions.

This, too, is something I learned in journalism school: Our teachers are everywhere, and everyone.



PHOTO: Conor MacDonald

New Year, new ideas: This issue of *ArchitectureBoston* introduces Genius Loci, a new column in the Unstructured section of the magazine. Translated loosely as "the spirit of a place," Genius Loci will offer a fresh perspective—sometimes literally—on unexpected places in our environments. This time, for example, architect (and journalist!) Ian Baldwin celebrates "the unplace" between the expressways leading north out of Boston. It is eloquent writing about an inelegant space. We welcome additional ideas and proposals for this feature.

Also, we have revamped the book reviews, making them longer and not necessarily related to the theme of each magazine. The proliferation of great new books related to architecture and design belies popular notions about the death of print. The choices are so great that we no longer wanted to restrict ourselves to books about a given theme.

We hope you enjoy these. ■

Renée Loth
Editor

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On "Turn Signal" (Winter 2012)

***ArchitectureBoston*'s commemorative** issue brings back fond memories of my migration from Houston to Boston for work in the mid-1960s. Boston was booming; urban renewal had ripped open the city and the floodgates for design firms. I interviewed with seven firms and got six offers. I settled at Cambridge Seven to work on the MBTA.

What is striking to remember today is that two offices I interviewed with were working to beautify the I-95 Inner Belt planned to move through the heart of Boston. The Architects Collaborative (TAC) was trying to make a one-block-wide, depressed corridor through Cambridge from the Charles River to Somerville look pleasant to the neighbors. Campbell, Aldrich & Nulty was trying to disguise a spaghetti of I-95 ramps as they crashed through the Muddy River and Fens. I had never seen architects working on such projects. In Houston, we just rolled over and let the highway barons pass through!

Twelve years on, I worked on the Forest Hills T station as part of the Southwest Corridor project. So I take a little issue with Fred Salvucci's article about getting from "no" to "yes." The Jamaica Plain neighborhood we worked with on the station design continued to say "no" for about three years to the garage we proposed on top of the station; for them, no roadway cars also meant no parked cars. As budgets often shape projects, we later had to redesign the station without the garage. Then, after the neighbors won their case, they stopped coming to our meetings, so we had little community input over the next three years to help guide our work. It seems that it is still easier to say "no" than "yes."

Looking back, and well documented in this issue, clearer heads prevailed—though only after a lot of emptiness had been created along the corridor's path.

CHARLES REDMON FAIA
Cambridge Seven Associates
Cambridge, Massachusetts

The issue is a great compilation of perspectives on the how, the why, the big characters, and the bits of political intrigue that propelled the state's transportation renaissance of 40 years ago. I hope that experience empowers more folks to take up the mantle today.

My general observation in comparing today with 40 years ago is that our problem now is completely on its head. We have the right policy foundations in place—from GreenDOT; mode shift; and our deep commitment to improving transit, walking, and biking statewide—we just don't have the resources to implement these worthy policy goals. The federal government is stepping away from the transportation financing commitments that were available during the highway fights of the 1970s.

At the state level, I am concerned that transportation has become more regionally polarized. We need to move beyond "who got what" in the past and focus on the vision for the future. Investing in the MBTA in particular is a harder case to make than in 1972. It's a problematic cycle: Service deterioration prompts claims of mismanagement, which discourages public sentiment to invest, which leads to further service deterioration, and the cycle continues.

We have the plan; we need the courage. With that combination, we can lead the Commonwealth's next, and so desperately needed, transportation renaissance in the coming year.

RICHARD A. DAVEY
Massachusetts Secretary of Transportation
Boston

"Turn Signal" tells the inspiring success story of a group of outspoken citizens who saved Boston from a highway project that would have severed Boston's neighborhoods, sacrificing community for automobiles. Boston mayor Thomas Menino has carried this fight into the 21st century, famously declaring in 2009, "The car is no longer king in Boston." With these words, Menino launched Complete Streets, an initiative that recalibrates our streets to focus on moving people, not cars.

The Complete Streets initiative presents a new design standard for Boston's streets that puts pedestrians, bicyclists, and transit users on equal footing with motor-vehicle drivers. It is being rolled out in a number of neighborhoods throughout the city, including the redesign of Dudley Square and Melnea Cass Boulevard. In addition to the transit benefits, these projects embrace innovation to address climate change and promote healthy living.

This has created a framework for other nonautomobile transportation programs to flourish. The city is extremely proud of bringing Hubway, the bike-sharing system, to the region and is continually looking for opportunities to ensure that all Bostonians have access to it. And we are looking forward to spring 2013, when three to four new parklets will temporarily transform on-street parking spaces into small public spaces that offer various uses for enjoyment—encouraging foot traffic and providing new places for communities to connect.

This journey has been marked with gleaming successes like Hubway, as well as tragedy. The community mourns the five bicycle fatalities that occurred in 2012, which serve as harsh reminders of the progress still needed. The City of Boston is committed to working with the community to ensure residents can safely and efficiently traverse the city in a way that benefits both the community and environment.

BRIAN SWETT
Environmental and Energy Services, City of Boston
THOMAS TINLIN
Boston Transportation Department

Many thanks for the wonderful and poignant articles about the tremendous history of stopping I-95 and the Inner Belt highway from being built across metropolitan Boston, then getting mass transit funded instead.

A committee of veterans of that campaign got the MBTA to agree to a commemorative panel outside the Roxbury Crossing station recognizing over 100 people, including many neighborhood leaders, who contributed. However, the panel almost didn't get put up, a casualty of the "building the road vs. protecting the neighborhoods" battles that continued well after 1972.

Although Governor Michael Dukakis' administration approved the installation, Governor William Weld was in office when the completed panel was delivered. MBTA employees were afraid to install it, worried that the new, no-nonsense, business-oriented Secretary of Transportation, James Kerasiotes, wouldn't like it. A series of personal appeals had to be made to move MBTA officials to finally install it. At the 1993 unveiling ceremony, no MBTA officials would attend, but 100 veterans of the highway fight gathered and had a moving time.

Today, Ann Hershfang wants to install this same commemorative panel at the entrance to the Southwest Corridor Park in the South End; I'll join her in this effort.

LEW FINFER
Massachusetts Communities Action Network
Dorchester, Massachusetts

Your issue brought a flood of fond memories, but I would have liked to see mentioned more of the unsung heroes who didn't go forward in public-service careers but carried on in other ways.

As crucial as Fred Salvucci's sage advice on both technical and strategy issues was to these early efforts, it was Jim Morey of Cambridge's Urban Planning Aid who introduced him to those of us with no experience in such matters. And all that expertise would have been for naught without the tireless efforts of people like Jamaica Plain's Ron Hafer and Rev. Don Campbell, Edwina "Winkie" Cloherty, John Bassett, Charlie Carpenter, and Don Hughes—a local businessman who recruited me, while still in college, to co-chair the Jamaica Plain Transportation Committee with him.

There were also a couple of strategic and tactical developments that might still be of interest and utility today. First was the strategic decision by the Jamaica Plain contingent to not simply join forces with Cambridge's total opposition to the Inner Belt. Rather than merely add our voices to that opposition, our strategy became a contingency one of advocating for a depressed highway—rather than the disruptive elevated highway planned for Jamaica Plain and Roxbury—in case the highway was not stopped altogether. This relatively sophisticated strategy for the time, largely the brainchild of Salvucci and Morey, helped us gain some early momentum given its more moderate appeal.

The second development was finding an error in the financial calculations of the state Department of Public Works, then charged with planning the elevated highway. The DPW initially estimated that a depressed highway through Jamaica Plain would cost three times the elevated highway plan. When this history and political science major, still in college, discovered the error and pointed out that the cost would be only double that of the elevated plan, opponents lost much of their leverage in arguing against the depressed highway alternative. Double the cost didn't sound as bad as triple, and this helped sway some city powers that were still resisting us.

Such contingency thinking and attention to detail certainly can apply today for those still trying to overcome the challenge of improving poorly planned public infrastructure and private development projects.

JOHN A. LYNCH
Holliston, Massachusetts

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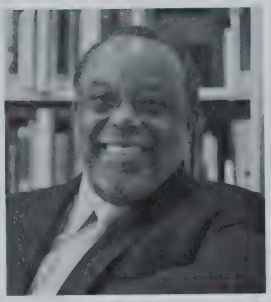


PHOTO: Marcos Toledo

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("The State of Our Schools," page 20)
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PHOTO: June Lee

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PHOTO: Craig Bailey

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PHOTO: Anna Salmeron

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Gretchen Schneider AIA is an architect and educator who has worked in public interest design since she was a student in Lee Cott's first "Bronzeville" studio. She received a bachelor's degree in American studies from Smith College and a Master of Architecture from Harvard's Graduate School of Design. She is currently executive director of the Community Design Resource Center of Boston.



Amy **Crawford**
("No More Pencils," page 52)
Amy Crawford has written for *Smithsonian*, *Slate*, and *The New Republic*. Before moving to Massachusetts in 2012, she spent four years covering education for the *San Francisco Examiner* and the *Pittsburgh Tribune-Review*. She has a master's degree from the Columbia University Graduate School of Journalism.



PHOTO: June Lee

David **Hacin** FAIA and Nader **Tehrani**
("Conversation," page 40)
David Hacin FAIA (left) is a principal at Sasaki Associates and president of Hacin + Associates, an architecture and design firm in Boston. He has taught at Northeastern and the Rhode Island School of Design. He received a bachelor's degree in architecture from Princeton and a Master of Architecture from Harvard's Graduate School of Design.

Nader Tehrani (right) is head of the Department of Architecture at the MIT School of Architecture and Planning. He is a principal and founder of the architecture practice NADAAA in Boston. He received a bachelor's degree in architecture and a bachelor's degree in fine arts from the Rhode Island School of Design, and a Master of Architecture in Urban Design from Harvard's Graduate School of Design.

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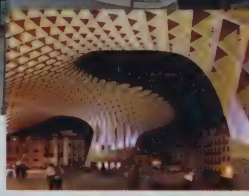
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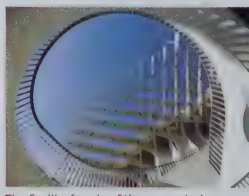
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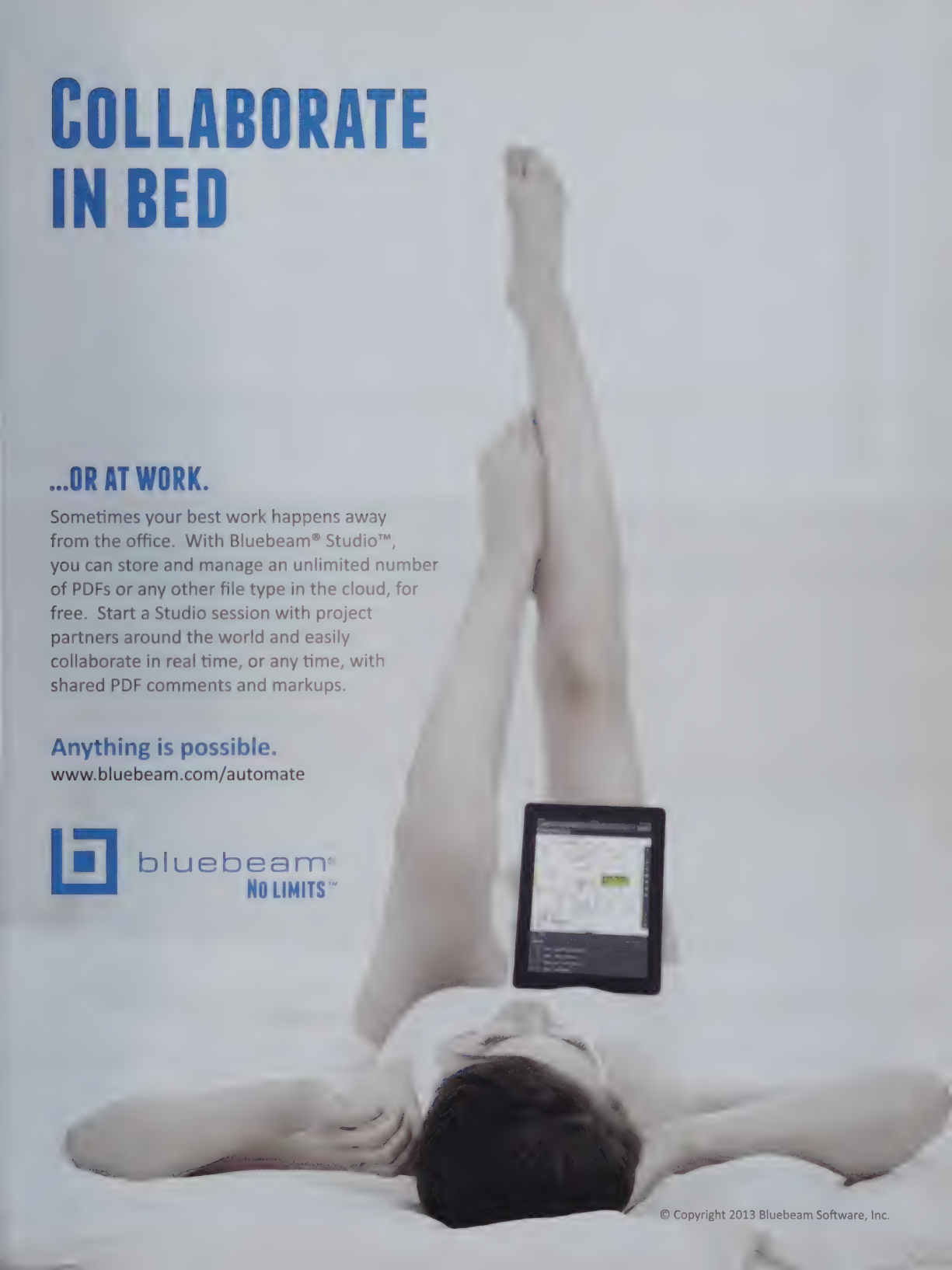
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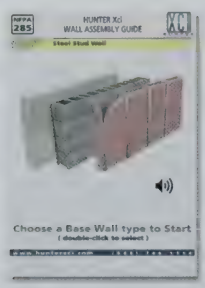
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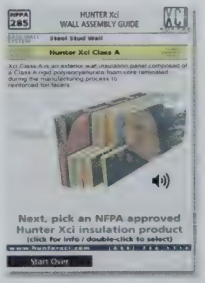
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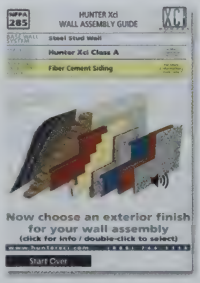
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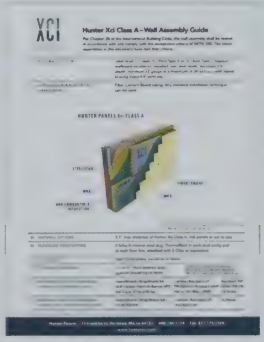
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Laura Raskin is a Brooklyn-based writer and an assistant editor at *Architectural Record* magazine.

ABOVE
Desert Seal by Andreas Vogler and Arturo Vittori of Architecture and Vision, prototype, 2004. Courtesy the Museum of Modern Art.

Born out of Necessity

Museum of Modern Art
New York City
Through January 28, 2013

Beginning with the premise that all design results from the clichéd but enduring notion of problem solving, *Born out of Necessity* packs an array of objects—from the mundane to the fantastically dystopian—into two small galleries. Though it opened in March of 2012, the exhibition seems eerily prescient post–Hurricane Sandy, as architects, engineers, and urban planners scramble to come up with solutions that could lessen the effects of extreme weather on human beings and infrastructure.

Some of the curators' selections should have been on prestorm shopping lists: for example, the oversized *Sheather Plus Nails* (2001), designed for use in wood-frame buildings in regions where hurricanes and tornadoes are a constant threat. Walls constructed with these carbon steel nails can absorb roughly 50 percent more force before giving in. *The Desert Seal* (2004), a lightweight tent made of polyester fiber and silver-coated Mylar, has a solar-powered fan at the top and provides temporary protection in extreme environments.

Other items were motivated less by apocalyptic threats than pervasive ones, such as the model of Tour Bois-le-Prêtre, a modernist housing block in Paris that was transformed from 2006–11 by Frederic Druot and the architecture firm Lacaton & Vassal. Bleak interiors were expanded with the addition of a glass shell that surrounds the existing building and adds balconies, more square footage, daylight, and views—a simple solution that would undoubtedly improve life for millions residing in similar postwar housing projects around the world.

Though architects and designers are rightly obsessed with both environmental and social sustainability, *Born out of Necessity* offers ingenious reminders of the answers they possess—if provoked.

Pari Riahi AIA is the principal of Pari Riahi Architect. She is currently an assistant professor at RISD and received a Master of Architecture and PhD from McGill University.

RIGHT
Fireworks around the Antwerp Cathedral, unknown artist, from the book *Pompa Introitus Honori Serenissimi Principis Ferdinandi*, 1642. Courtesy the RISD Museum.

The Festive City

The RISD Museum
Providence, Rhode Island
Through July 14, 2013

How to capture the ephemeral? Religious rituals and civic festivities have always been part of collective living. Yet their temporal nature makes them less tangible for generations that follow. *The Festive City* offers glimpses into some of the most fascinating celebrations across Europe from the 16th to 18th centuries. The illustrations depict Paris, Rome, Venice, and Vienna, among other cities, featuring scenes of fireworks, religious processions, and royal wedding ceremonies. Although some prints show temporary built artifacts, others offer episodic narratives of such events.

The exhibition reveals rituals and social structures of times and places that are inaccessible to us otherwise. The prints slowly take hold of our imagination with their minute details and the grandeur of the events they depict. By enabling us to imagine the sights and sounds of these festivities, the drawings become portals through which we see places we know so well in an entirely different light.



Genius Loci

The Unplace

Ian Baldwin is an architect and writer who has taught college infrastructure seminars in New York and Boston.



RIGHT
Photo: John M. Sullivan

Over the Zakim Bridge, past Boston Sand & Gravel and its orbit of swooping ramps, there is an unplace.

The expanse between East Cambridge, Somerville, Charlestown, and the Charles has no name. It is notable for what goes through it: I-93, the Orange Line, the Gilmore Bridge, commuter rails bound for North Station. Few riding by will look twice, if they look at all, at the tilt-up warehouses and access roads; at the train tracks looping through acres of dirt, scrubby greenery, and asphalt.

This urban flyover country is part of every city. Its universal look is low, flat, gray-beige, depopulated. It can be called brownfield, drosscape, or no-man's-land, terms that suggest a wastage and uninhabitability, which the view from a car speeding through seems to confirm.

I am drawn to these areas for their opposition—topographical and logical—to the City on a Hill. Tens of thousands of citizens hold stakes in the respectable blocks next door; here hardly anyone bothers to see a never-ending and messy evolution of economy and technology writ large. It is a case study in what the landscape architect James Corner calls *Terra Fluxus*, revealing "the entire metropolis as a living arena of processes and exchanges over time."

One such exchange was in 1633, when a Native American village on what is today part of Bunker Hill Community College was wiped out by smallpox. Not long before, a group of Massachusetts Bay Company colonists had laid out their town on the deeper waters of the Charles.

More colonists arrived from England, but a summer epidemic pushed new settlements elsewhere, including one across the river named Boston.

Nancy Seasholes' book *Gaining Ground* documents how the marshy flats were put to work. From 1645, a tidal dam powered a grist mill. The Middlesex Canal opened in 1803 and emptied into the Mill Pond south of Sullivan Square in Charlestown.

The same year, the state bought the point where the Native American village had been, enlarging and straightening its shoreline. Granite for a Charles Bullfinch–designed prison was quarried in Chelmsford, floated along the canal, and towed to the point along a floating towpath (later Rutherford Avenue). A group of Charlestown residents financed a bridge from Prison Point to Cambridge on the route still followed by the Gilmore Bridge.

If these early large-scale interventions suggested a future defined by infrastructure, the railroads' arrival in the 1830s ensured it. For the next century, they filled in the shallow bay with causeways, islands, and shore extensions to hold train yards, freight sidings, and engine houses. In 1895, the Boston and Lowell line cut down the hill where McLean Asylum had marked the southernmost tip of Somerville; today the area is an industrial park.

By the 1930s, the eddies and flows of the tide had been redrawn in steel, all but erasing Miller's River, the original Cambridge-Somerville line. A riverine border remains where the river no longer runs, its stunted remnant hidden under the concrete pillars of the Zakim Bridge.

Environmental groups say that runoff from the MBTA's vast Boston Engine Terminal brings metal compounds, phosphorous, and oil into the river, and the volume of discharge sometimes causes flooding in Somerville. Restoring Miller's River and its wetlands could clean up the watershed and even re-create a riparian landscape. On the former flats off Lechmere Point, the beachhead of apartment towers and sculpted green called Northpoint suggests a market-driven alternative.

Both visions say far more about us than the site, for the unplace has never dealt in the aspirational. From brick factories and slaughterhouses to server farms and testing labs, the unplace is a horizontal backstage, the coulisse for the stage sets of the designed city, hiding in plain sight.

On an otherwise dystopian walk along the Gilmore Bridge, look north into the present tense of urban ecology. The horizon offers only decks of high-speed traffic and steel-pylon billboards, but on a warm afternoon in September, you can look down and be the only one to notice the wind rustling through a ragged stand of trees. When the traffic breaks, you can faintly hear it, too.

Seen

Sidewalk Dancing
Mexico City, Mexico

Dennis Pieprz
HASLA is a principal at Sasaki Associates where he focuses on urban districts, new communities, waterfronts, and urban regeneration projects internationally.



RIGHT
Photo: Dennis Pieprz

One Saturday a few months ago I went to visit a remarkable complex of libraries slowly transforming the sprawling La Ciudadela market into a center of culture and learning at the heart of Mexico City. Exhilarated by the experience, I walked outside to discover a small square adjacent to the complex that I had not noticed when I first arrived. Drawn by a cacophony of lively music coming from speakers set up in the trees all around, I saw people of all ages dancing together, as if they were at a formal grand ball. The elegance and civility, with the clamorous Mexico City traffic in the background, was a sight to behold.

Low walls formed long linear benches and combined with stone or concrete "dance floors" set into the plaza surface to define a space for the action. Hovering above, a series of floating roof canopies seemed magically suspended. I loved the way the "design" of these informal urban plazas made people look so elegant in their lessons and performance. Friends and visitors casually relaxed and watched the unfolding scene. I can imagine, during the weekdays when the dancers are gone, that those dance floors are a reminder of the special weekend event—a wonderful public space supporting public life in the city.



Focus: The Postcard Age

Museum of Fine Arts, Boston
Through April 14, 2013

In our era of Twitter and Instagram, paper postcards are barely still with us. *The Postcard Age* takes us to the moment when the industrialized cities were growing at extraordinary rates, leisure time was new, and technological developments such as electricity and rail (and soon after, air) travel were celebrated. Featuring street photographs, painted scenes, and cut paper collage, these postcards are tactile, beautiful, and full of life, their hand-written messages as immediate as if posted to Facebook today.

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LEFT
Taliedo. Great day of aviation, 1934.









Covering the Issues

Gretchen Schneider AIA is the executive director of the Community Design Resource Center and the deputy editor of *ArchitectureBoston*.

The future is now... *Wired* magazine's UK edition offers its first annual forecast, "The Wired World in 2013," with a variety of luminaries weighing in on topics ranging from technology and the environment to media and medicine. Inventor and vacuum mogul James Dyson, for example, predicts that "Engineers will save the planet." He scoffs at "green" and "sustainable" labels as "lazy marketing," arguing that good engineering by definition pursues "lean solutions"—and this will be all the more critical as energy costs rise and raw materials are depleted. Dyson also makes a plea for research investment that allows long-term development over short-term results. The most important work is often not immediately obvious, he reminds us: Thomas Edison had no idea of the vast impact that his filament experiments would someday have. Meanwhile, Virgin Group founder Richard Branson argues for 2013 as the year to focus on oceans, while others discuss networked cars, crowd-sourced urban development, and expanding cap-and-trade programs to water consumption. Though *Wired*'s "annual" lens seems silly, the broader agenda is stimulating.

It's baaack... Like an old zombie movie, just when you thought the monster was dead, it rises again from the grave. So it goes with Boston City Hall commentary. "Leave City Hall Alone!" opines art critic David Bonetti for *Art New England* (November/December 2012). Recounting the decades-long debate between the cognoscenti (City Hall is a misunderstood gem) and regular people (it should be imploded), Bonetti stakes his claim among the concrete castle's admirers, likening its lobby to a Gothic cathedral. "Americans pay good money to visit France in order to experience architecture of equal awesomeness," he says. Um, maybe. Bonetti's more compelling insight is that "Boston City Hall may be the world's greatest architectural monument to what might have been; that is, a world in which the citizen, not the banker, not the CEO, not the corporation, is king." In our era of rather timid civic expression, he challenges citizens to be as great as their building.

Face Lift... Is New York City getting frumpy? Are too many office buildings too old, too small, and too unappealing to modern corporations when compared with the shiny new structures in Shanghai or London? Critic Justin Davidson suggests that might be the motivation behind the Bloomberg administration's rezoning of huge swaths of Manhattan, including potentially permitting 1,000-foot skyscrapers next to Grand Central Terminal. This is one proposal that goes too far, argues Davidson in "Too Much Midtown" (*New York*, December 17–24, 2012), as he eloquently describes the unique balance of public access, private profit, and spatial subtlety in the historic train station while outlining the negative effects that gigantic new buildings would have on pedestrian experience. More than a story about one business district, Davidson's discussion speaks to larger questions about how cities could and should change over time; architectural obsolescence; and the importance of paying close attention to what happens at the sidewalk level.

If you build it... MIT professor Neil Gershenfeld celebrates the imminent arrival of a digital fabrication revolution in "How to Make Almost Anything" for *Foreign Affairs* (November/December 2012). That is, "the ability to turn data into things and things into data," from jewelry to pieces of buildings. Since the 1950s, researchers have been developing computer milling tools, though their expense has limited their use to institutions and large companies. Not for long, forecasts Gershenfeld. Just as mainframe computers gave way to personal laptops, so, too, will individuals soon be able to purchase—and personalize—their own computer-controlled milling machines. As Gershenfeld notes, you or I already could buy our own machine to re-create the parts in an IKEA flat-pack box; 10 uses would recoup the machine's cost, and we can customize the furniture (or whatever) for our preferences. In today's digitally connected world, Gershenfeld speculates on the extraordinary promise of connecting innovative brains to the means of making things, no matter where one might live.

TEDxBeaconStreet

November 17–18, 2012, and ongoing

TED, the exclusive conference that began in 1984 bringing together top thinkers in technology, entertainment, and design, started licensing independent TEDx events in 2009. In the few short years since, the franchise has spawned more than 5,000 local offshoots around the globe. The Boston area alone hosts TEDxBoston, TEDxCambridge, TEDxFenway, TEDxRoxburyWomen, TEDxMIT, TEDxKendallSquareED, TEDxBU—and now, the newly formed TEDxBeaconStreet.

Why yet another TEDx? The Beacon Street edition, which held its first conference in November 2012, has ambitions beyond the TED motto, "ideas worth spreading." Like the street itself, which traverses Boston, Brookline, and Newton, TEDxBeaconStreet hopes to bridge communities.

The November conference presented the usual program of speakers, alternately riveting and sensationalistic, including Adam Frankel, a former speechwriter for President Obama; journalist Anthony Flint from the Lincoln Institute of Land Policy; and Vlad Murnikov, a boat designer and builder. Unlike many of its counterparts, however, this event was free and held in a public elementary school in Brookline. The speakers were selected by a group of 50 curators and 100 "brain trust" members, not the typical two or three curators for a TEDx event.

As its name suggests, TEDxBeaconStreet seeks to change the way we engage with particular urban settings, taking participants out of the auditorium and into the streets. Toward this end, TEDxBeaconStreet's founder, John Werner, has developed a full lineup of TEDxAdventures—field trips and behind-the-scenes tours that complement the formal conferences. "It's about the community forged after the event," Werner says.

Past adventures have included a tour of the MIT Media Lab's Camera Culture Research Group and a visit to the early-morning operations of the Chelsea Produce Market, one of the world's largest. Later this spring, Kairos Shen, chief planner for the Boston Redevelopment Authority, will lead a walk of the Innovation District, and Jim Levitt, director of the program on conservation innovation at the Harvard Forest, will offer a tour of Boston Common, exploring its role in the American conservation movement.

TED's slickness and the zeal of its fans have long made me wary, but TEDxBeaconStreet represents a significant departure from—and perhaps an improvement over—the pervasive TED model. It focuses less on polished speakers and places greater emphasis on engagement with its host community. TEDxBeaconStreet re-envisions TED, evolving from "ideas worth spreading" to "ideas in action."

Meera Deean is a senior designer at Utile. She received a Master of Architecture from Harvard's Graduate School of Design and a bachelor's degree in art history from Williams College.

MORE ONLINE
tedxbeaconstreet.com



THE STATE OF OUR SCHOOLS

UPHEAVAL AND UPLIFT IN EQUAL MEASURE

BY TED LANDSMARK ASSOC. AIA

The Great Recession has reshaped the American design industry through firm consolidations, withdrawals from practice, globalization, and accelerated project delivery methods using new technologies. Membership in the American Institute of Architects (AIA) has declined by about 20 percent over the last five years. Yet the AIA also anticipates a talent *shortage* by 2014 because of the large numbers of vacancies emerging within firms, particularly in midlevel management. Productivity has increased, and many firms now report their highest profits ever.

American design schools—and their students—also have been under duress. Over the past five years, architecture enrollments nationally declined by about 20 percent, to 28,000, while the number of programs increased—so fewer students are now enrolled in more programs. The average undergraduate student is now paying about $21,000 a year for tuition, books, and materials; he or she will graduate with about $52,000 in debt. The average master's degree student is paying about $22,000 and will carry about $82,000 of debt.

Since the average intern compensation in traditional design firms is about $37,000 annually, many recent graduates forgo such employment to enter higher-paying related fields such as engineering, software development, real estate, and construction. Such graduates must be adaptable, collaborative, technically skilled, and sensitive to designing for human and environmental needs.

Meanwhile, architecture firms are increasingly bypassing new spatial designers per se and retaining social psychologists, economists, and anthropologists to better accommodate clients' needs. Evidence-based design principles pioneered in interior design and natural sustainability principles developed by landscape architects are also being incorporated into architects' lexicon and work practices.

The practitioner's lament that architecture school graduates are too often ill prepared for the pragmatic vicissitudes of professional practice now combine with students' grumbling that they want more hands-on education that uses their advanced computer skills and rewards their compassion for underserved clients around the world. Change in design education is inevitable, and the profession's accreditation agencies need to prepare for change as well.

Higher education generally is trending toward virtual universities and curriculum revisions that shorten programs, add online education, combine traditional disciplines, and introduce lifelong learning. A la carte, do-it-yourself, online courses of study; collaborative Massive Open Online Courses ("MOOCs"); and the use of social media for teaching have increased options for obtaining certification across a range of subjects.

Recommendations for new models of design education are proliferating. To distinguish themselves from the free-form education that takes place in open-source learning environments, accredited professional design schools are emphasizing their structured evidence-based rigor and outcomes assessments to ensure that graduates are well equipped for professional practice.

Integrative design programs such as those at the "D School" at Stanford or the Olin Engineering School at Babson are now also considered to be innovative places to study, even as they may lack recognition from traditional design-education accreditors. Such programs reflect how the increased complexity of design projects requires collaborative thinking and work across traditional disciplines. These programs raise questions about whether current accreditation criteria may be too narrowly prescriptive to allow for differentiated pathways into design careers.

Innovative new design accreditation standards could redefine measurable learning outcomes and program assessment criteria to include design thinking, client awareness, research skills and



specialization, building science, management, communications, studio learning culture, public accountability, and comprehensive design.

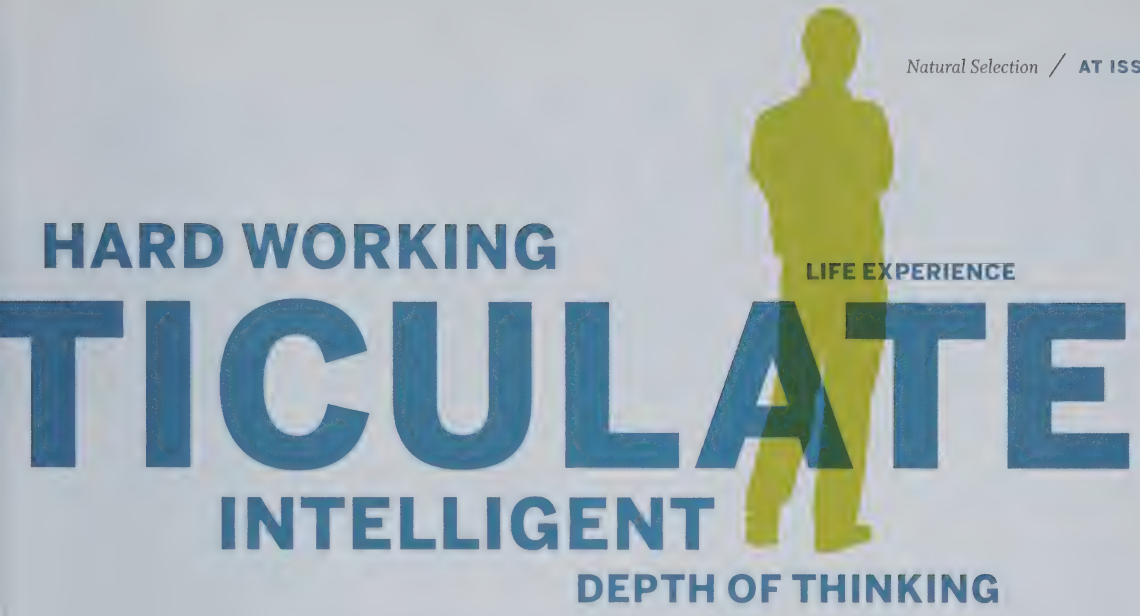
James P. Cramer, co-chair of the Design Futures Council, proposed in *DesignIntelligence*'s annual education issue that schools "obsess with keeping current," teach leadership, provide hands-on skills, teach current management metrics, and more closely connect faculty and practice. At the Boston Architectural College, we are increasingly focused on technical proficiency; applied, service-based learning; integrated design studies and collaboration; professional and continuing education; diversity and inclusivity; strategic alliances and global learning; and ethics and social responsibility.

These and other recommendations have educators, practitioners, and accreditors rethinking how we prepare graduates for the range of career options they will face—and invent—in the decades ahead. Our design professions will never again change as slowly as they have over the past century. To meet this accelerated pace of change, programs need to become more agile, adaptive, and innovative in anticipating what design professionals will need in the future. ■



NATURAL SELECTION

As thrilling as the design school experience can be, most graduates live in hope that their architecture degrees eventually will lead to a job. We asked principals from five top local firms to describe what skills and qualities they look for when hiring new recruits—and whether today's architecture schools are developing them. The answers may surprise you.



A HOME FOR BROAD MINDS

by William Rawn FAIA

At its best, architecture is about ideas, about a nuanced understanding of culture, about the essential aspirations of clients and institutions, and always about a deep sense of place. Architecture has responded to these imperatives for thousands of years. It responds to these issues today.

This universality is one of the things that excites us about architecture. An architectural office should be responding to ideas, culture, and place as powerfully and robustly as it can. In our office, architects must be similarly well informed about these qualities. Following are three personal characteristics we look for in interviewing prospective architects for our firm. I would hope that architectural education—at the undergraduate and graduate levels alike—would focus on them.

First, an ability to be creative in the design process is a given. Design is unbelievably rich, broad, and very difficult. That said, in the interview process, we always are trying to make judgments about an applicant's design intelligence and intuition. This is step one.

Next, we know design is broader and more complex than simply intuition. In addition to design skills, we expect our architects to be conversant with and able to articulate the subtle and nuanced elements of ideas, culture, and place. We find this is best captured in a set of life experiences, which add depth of thinking about those issues to the normal skills that an architect learns in school. I find that the best education—in concert with life experience—comes from a broad-gauged liberal arts curriculum. We do not care if one majors in English or chemistry or art history or a social science—or architecture, when it is combined with a liberal arts training. The important element is the depth of thinking coming from that education. Liberal arts education suggests an insatiable curiosity, an ability to express oneself visually, verbally, and in writing; a willingness to dig deeply into a problem.

Finally, our office maintains a strong belief in meritocracy. Anyone—from any part of the country, from any social background, from any college—can succeed here. That is our basic mantra. We are proud that for many years we have had a plurality of staff who grew up in the Midwest. I am from California, and when I first arrived in Boston, I did not know a single person here. From a similar start, I want anyone applying for a position here to know that family and social connections have no influence on hiring.

So many of us are immigrants—from abroad or from other parts of the country. That is one of the joys of Boston. Many of us came here to go to school, and ended up staying. We did so because Boston is an unusually democratic (small d!) and egalitarian place. It is a place where "outsiders" can make it. Succeeding is simply a matter of personal qualities, intelligence, and hard work. We are terrifically proud of this mantra. It has been valuable to us for more than 25 years, and we want to bring people to the office who believe in it, too.

William Rawn FAIA is founding principal of William Rawn Associates, Architects. He is a graduate of Yale College and Harvard Law School, and received his architecture degree from MIT.

CREATIVE DISCIPLINED ANALYTICAL ADA



A USEFUL EDUCATION by Sho-Ping Chin FAIA

Sho-Ping Chin FAIA is principal at Payette, where she leads the firm's healthcare practice. She received a bachelor's degree and a Master of Architecture from Princeton University.

A course I took decades ago in architecture school, *Fin-de-siècle Vienna* taught by the cultural historian Carl Schorske, was not required but strongly recommended. I signed up but asked, "Why?" It was much harder than design studio, what with writing treatises on how the intersection of Sigmund Freud, Arnold Schoenberg, and Adolf Loos gave rise to Modernism. Although I didn't get a stellar grade, the course began to discipline me to think analytically, which was instrumental in developing my skills as a designer and practitioner.

Decades later, what I learned in that course still resounds within my professional career. I am relieved to hear that architecture pedagogy continues to emphasize intellectual development via studio exercises and theoretical discourses. But I have also heard much disenchantment on this exclusive focus, which often leaves students ill prepared for the rigors of the profession. It's unfortunate that some academicians have never—or barely—practiced architecture and, consequently, are often out of touch with realities on the ground.

Our profession has evolved into a demanding multifaceted and exceedingly competitive business on all levels. The designer of today has to find the work, design it, and manage it within financial constraints. Now, more than ever, architecture education has to better prepare graduates for these expectations.

My firm, Payette, has a core practice in designing technologically complex buildings, primarily in science and healthcare, typologies often overlooked in the academic milieu. One would expect recruitment of the best and brightest would be challenging for us, but we have been fortunate to have access to a wealth of competent graduates. In interviewing a candidate, we emphasize the following attributes:

Design acumen. For the portfolio, conveying the thought process graphically and verbally with clarity and brevity is far more compelling than showing Rhino renderings. We like to see creativity through inquisitive explorations within a disciplined rigor. Hand sketches that express the design concept are prized. And demonstrating successful collaboration on a team project is a welcome attribute.

Multidimensional competency. We are interested in other skill sets outside the core curriculum. Active participation on the debate team or writing critiques in the school journal adds depth and breadth to one's character. Versatility is much sought after in the professional practice.

Pro-activism. We like to see young designers taking initiative to enrich their development. I once interviewed an applicant who organized a school lecture series outside of the usual "in vogue" architects to focus more on students' interests, such as pro bono initiatives, new modeling technology, or works by lesser-known architects. A résumé with a list of community activism to rival Barack Obama's is indicative of leadership aptitude. As the baby boomer owners stream into retirement, firms are now scouting for the 20- and 30-year-olds who exhibit strong leadership skills to be groomed for the future.

Architecture is still one of the most challenging professions to master. Having a strong foundation in critical thinking will never lose its relevance. The rest has to do with the individual: inquisitiveness, collaborative spirit, discipline, and passion. Please contact me if you have all of the above.

CURIOUS
PTIVE PASSIONATE
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DESPERATELY SEEKING GENERALISTS by Alex Krieger FAIA

When seeking younger staff for our office, the catch-phrase "think globally, act locally" sometimes pops to mind. For me, this clichéd advice about responsible citizenship evokes—in the context of a staff search—an individual who has wide-ranging curiosities about design and planning coupled with very particular skills to perform design or planning roles. The above may sound a bit abstract, or slightly contradictory, but is crucial to the way that our office operates.

Because the Boston office of NBBJ undertakes a diverse set of projects, including many in urban design, we generally prefer generalists—generalists who are broad-minded, with passion to enhance the built world but always seeking specific ways to achieve a better-built world. What we take from the original dictum of Leon Battista Alberti—a large house is like a small city, and a small city is like a large house—is the challenge to inform the design of the part, or a building, or an urban place by studying its larger human setting and vice versa. We believe that better architecture and better urbanism more consistently result when they are influenced—infected, if you will—with insights about problems smaller and larger than those immediately being addressed. This is why we welcome a generalist's perspective.

Of course, a design office must have people who draw and render beautifully; or detail expertly; or compute, or plan, or manage, or coordinate very well; or fulfill several such roles concurrently. But even when they are responsible for a specialized task, they must think "globally," if not about the whole planet, then certainly about how their specialized task relates to the project overall; the expectations of the client or user; and the physical and social context in which the project will be set.

Only rarely do we hire "a specialist"; indeed, we prefer those trained in more than one discipline. For example, a talented architect or landscape architect who acquires a second degree in urban design or planning; an interior designer with a background in architecture; or, simply, someone trained in one design discipline but committed to learning about a kindred design discipline through intensive collaboration and willing to step out of his or her disciplinary comfort zone. Such people are exceedingly valuable.

So we seek out young colleagues who think across tasks or disciplines.

On the other hand, we have had less success with people who just think. Now here is where I must proceed with caution, lest my academic colleagues express their disdain. By "just thinking," I mean people who are moved more by theories about the built world rather than the application of those theories to the design of actual places, or designers who confuse their wondrous renderings with the far more granular process of placemaking.

Newly minted graduates tend to exhibit such thinking, at least for a while. That is not to say that design schools should become trade schools. Their primary purpose isn't skill building but unleashing the "thinking powers" of future professionals, developing their creative, conceptual faculties. We seek out such thinkers, yes, especially those with a mindset predisposed to action.

Alex Krieger FAIA is principal of NBBJ and has taught at Harvard's Graduate School of Design since 1977. He received his bachelor's degree in architecture from Cornell and a Master of City Planning in Urban Design degree from Harvard.

LEADERSHIP APTITUDE **COLLABO**

TECHNOLOGICALLY ADEPT

A CRIT FOR TEACHERS

by Steven J. Brittan ASSOC. AIA

Steven J. Brittan ASSOC. AIA is a principal at Sasaki Associates, where he is focused on the integration of technology and design. He received his Master of Architecture degree from Harvard's Graduate School of Design.

Fierce competition, economic cycles, and constant pressure to deliver exceptional service for reduced fees only increases the challenge of finding highly competent students who can learn the ropes quickly and become reliable contributors to a firm.

Until about a decade ago, the practice—and teaching—of architecture had changed minimally. Today we are at a point where architecture is fighting to stay relevant, precisely because it has not evolved. Large firms are trying hard to fight the commoditization of their services, and smaller firms are struggling to maintain their unique design identity.

What are the qualities that make the ideal candidate in this battle to survive? Ironically, some students today have a better sense of where our profession is headed than do the legacy firms and their leaders. They are skeptical about their training and question where their education will lead them. They are restless and searching for relevance. Why? Because, as architects, we have been slow to adapt, while other industries capture and leverage the inherent value of our discipline.

The notion that design is uniquely the endeavor of a single creative genius is anachronistic. Either the profession accepts an increasingly reduced role in providing design ideas and intent or we find a way to manage and lead the supply chain of the built environment. In the face of climate change and increasing urbanization, architects could be foremost in conducting teams to create meaningful, sustainable solutions.

Real change will most likely come from the bottom up: from the millennials who are innovating as I write. They are capitalizing on the rapid speed of decision making in start-ups and apps. They are adaptive, aesthetically attuned, multidimensional, and communicate in ways my generation has difficulty understanding.

Universities are failing to provide relevant subject matter to adapt to the massive changes under way, and we owe it to future architects to do so. We should reduce the distraction of esoteric theory being taught at top-ranked schools and give students the experiences and tools to collaborate and innovate in the context of the contemporary world. Cisco Systems, IBM, and Siemens are fundamentally transforming the way we build—scientifically managing the construction and efficiency of infrastructure, buildings, and cities—yet architects are hardly participating in this arena.

Interdisciplinary, team-based courses that should be included in the core architecture curriculum would better prepare our students to help meet these global megaconstruction trends. Here are a few I would recommend:

- **Systems integration, manufacturing methodologies:** Aerospace, automobile, shipping industries as models; modular construction, fabrication
- **Renewable technologies:** Materials, systems, applications; building/environmental/material science and engineering; nanotechnology
- **Data-driven design:** Performance-based design; Building automation systems (sensors, devices, and controls); project management/lifecycle delivery systems)
- **Sustainable urbanization and climate change:** Smart Cities/urban ecosystems; infrastructure, waste management; behavioral sciences
- **Business finance and management:** firm management; real estate finance
- **Research and development:** Strategic partnerships; intellectual-property development

With design as the critical underpinning for all these courses, leaders in practice and academia alike need to anticipate the change happening in our industry—and, in so doing, allow future talent to emerge and help shape our future.



WELCOME TO THE REAL WORLD

by Arthur Cohen FAIA

The role of architectural schools in creating graduates ready to "hit the ground running" has been debated as long as I can remember. As the education of an architect is a lifelong endeavor, I offer an explanation of how we at ARC/Architectural Resources Cambridge integrate recent graduates into our practice and help them in their journey to becoming architects.

Since ARC was founded in 1969, newly minted architecture school graduates are first assigned to the ARC Studio. As fellow architects who were once thrust into professional practice ourselves, firm leaders do not expect new graduates to be knowledgeable in all aspects of the industry, but to possess a solid foundation in the arts and sciences as well as architectural studies. Some schools try to incorporate courses in practice and business principles, which get lost in the fog of studio work and only come into focus when one moves into project or firm management.

The Studio serves as the heart of our office in both workflow and energy, allowing young interns to grow professionally and personally within the office culture. It is here where these interns get a chance to work on multiple projects with all members of the firm, ranging from other intern-architects to project managers to senior staff and principals. Through their time in the Studio and their experiences on these projects, they learn how we collaborate, communicate, and ultimately create unique solutions for each client's specific needs. It is in this role where these individuals grow in their knowledge of architectural practice and eventually "graduate," yet again, onto project-specific teams.

One recent graduate of Rensselaer Polytechnic Institute who experienced the ARC Studio observed that her time in the studio was critical to her transition from student to early-career architect. The work and demands she faced, she noted, felt similar to those she had encountered at college, and yet in the process of working closely with design teams, her knowledge of the profession expanded rapidly. "I quickly gained the experience that I would not have seen for years had I only worked as an intern on a single project," she wrote on her blog.

Now working within a small team on an addition linking two large buildings, she will continue on this project through all phases of its development, learning more about how buildings are put together and how interdisciplinary design and construction teams collaborate.

Such observations from those who have experienced this transitional approach from academia to the workplace validate how ARC continues to offer our employees on-the-job continuing education and an understanding of what it means to be an architect.

No matter what a particular academic program may offer in an attempt to prepare its students for the real world, it is the workplace that must offer individuals an environment in which they can find their own path to success. How individuals apply what they have learned in school and embrace the necessary spirit of collaboration—combined with the creative thinking required in an architectural practice—is what will determine their way forward in the profession.

Arthur Cohen FAIA is a founding principal of ARC/Architectural Resources Cambridge and a graduate of the Rensselaer Polytechnic Institute School of Architecture.



A Change Is

Design education hits fast-forward

BY **GEORGE THRUSH** FAIA

ABOVE, LEFT
A drawing room at the MIT Department of Architecture, circa 1890. Courtesy the MIT Museum.

ABOVE, RIGHT
The BEB CAD Lab at Rhode Island School of Design. Photo: Camila A. Morales. Courtesy the RISD Media Group.

MORE ONLINE
mooc.ca/courses.htm
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At our neighborhood Starbucks recently, my son and I sat down at a long family-style table to quaff our morning liquids. We were joined by a charming German woman who shared with us—quite without hesitation—that she was none too happy with recent alterations to the Starbucks decor. It turns out that the large communal table (seats eight, somewhat uncomfortably) had replaced three easy chairs. An idealized simulation of domestic living space is key to the coffee chain's success, and by altering it to increase seating capacity, management had carelessly assumed that the changes would be welcomed as progress. But our friend didn't see it that way at all. She was conscious only of the absence of the comfy chairs, not of the new opportunities for conversation that the big table offered.

Our coffee companion isn't the only one worried about change, and possibly missing out on its potential for upside as well. As both the academic and popular press have noted, dramatic changes are coming to higher education, as online pedagogy reaches a tipping point and begins to transform the university as we know it.

One of the market oddities of the higher-education industry is that all undergraduate degrees cost roughly the same amount, irrespective of the prospective financial returns of the chosen field. When students and their parents are preparing to spend such a large sum of money, they cannot help but think of it as an investment in their economic future. And when the rate of increase in architecture salaries is not keeping up with the rising cost of the education, something has to give. In architecture schools, this is going to mean a lot of change.

The engine driving this change is pretty simple: The twin forces of rapidly advancing technology and unsustainable costs are combining to make dramatic changes throughout the industry. Although these changes will be dramatic, they will affect various academic areas in very different ways. Online education seems to adapt very easily, for example, to computer science or electrical engineering. In the fall of 2011, Stanford professors Sebastian Thrun and Peter Norvig taught a course called Introduction to Artificial Intelligence, and 160,000 people worldwide enrolled in the course. Surely quantitative courses (where there are clear distinctions between right and wrong answers) lend



Gonna Come

themselves to computer-based delivery most easily. But architecture schools offer a mix of quantitative material (math, physics, structures), cultural material (history, theory, professional norms); and skills (creative problem solving, diagramming, communication, analysis). Not all will lend themselves to online delivery right away.

We can probably best understand the changes in the following categories: new modes of delivery, obstacles to change, opportunities for the discipline, and, to paraphrase Dick Cheney, unknowns.

The new modes of delivery have been well documented. The biggest and most significant is the Massive Open Online Course, or MOOC (as in the Stanford example). Here, one can easily imagine a single leading faculty member teaching the dominant lecture portion of a critical architectural history course. What if, instead of Yale's Vincent Scully lecturing only to students in New Haven, Connecticut, he were lecturing to half the architecture students in the country? In such a scenario, only the smaller discussion portion of the course would be taught "in person."

Research already has shown that some kinds of knowledge are in fact better taught online, with quick and regular feedback greatly enhancing comprehension and retention. Quoted in the *MIT Technology Review*, Thrun sees lots of advances coming from online courses. "We've only seen the tip of the iceberg," he says, because the immense data sets available to computer-science researchers from the MOOCs mean that courses will continue to develop to maximize student learning outcomes.

It is harder to imagine how the design studio, seen as the core learning experience in architecture school, would easily transform in the new environment, but it could. Currently there are long periods of time spent in the studio with other students, periodic pinup reviews with outside critics, and then short, intense periods spent discussing an ongoing project one-on-one with an instructor. In the online world, the studio time might remain unchanged, while reviews could include participants from all over the world. The one-on-one studio portion is the only existing aspect that should remain unchanged.

One of the most frightening aspects of these changes for faculty is the notion that our job might no longer be to develop replacements for ourselves. Rather, the models for new faculty roles in this uncertain future may be quite different. There will likely be fewer full-time faculty positions in some areas (such as lectures). But there should also be an expanding need for people to teach small sections that require lots of contact and hands-on work, whether in the design studio or at the seminar table.

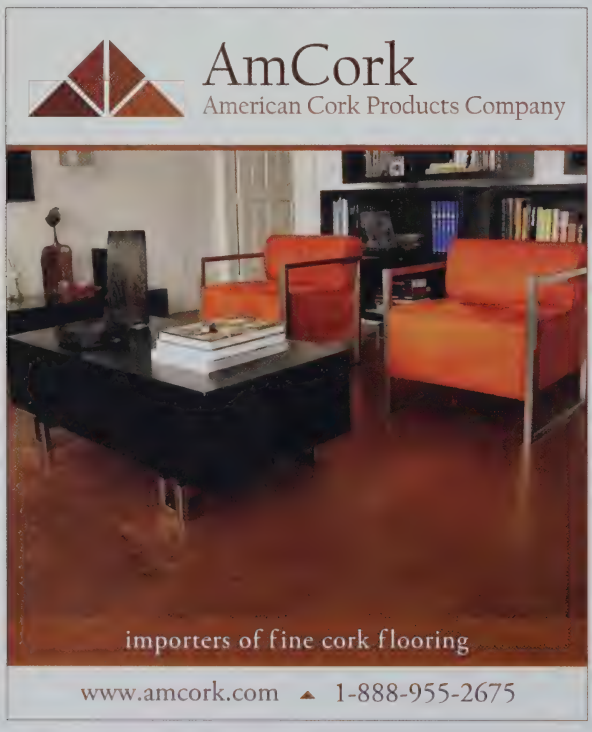
That's because the part of education that isn't vulnerable to these new scalable efficiencies is the development of real understanding. Analysis, reasoning, writing, explaining, contextualizing, and communicating are all critical skills that seem not to be ripe for these changes in how information is delivered. At least not yet.

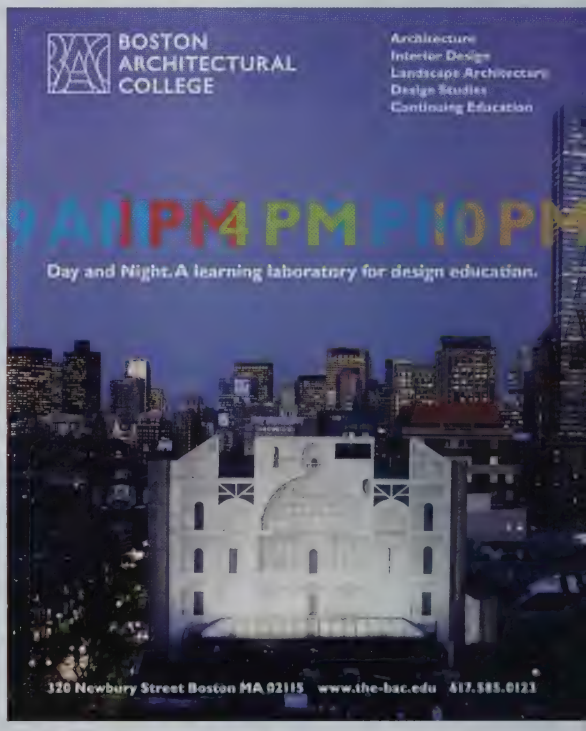
The online revolution also may be able to make an architectural education shorter. Lowering the cost of onsite instruction has proved to be difficult, so perhaps we can reframe the time to degree instead. In architecture, we have an apprenticeship-based profession, in which we could transfer responsibility for more of professional training to the profession. At Northeastern University, for example, students spend two six-month periods in paid, full-time employment at architecture and design firms (known as co-op, or experiential education), where they learn a great deal about architectural practice, often in ways vastly superior to the classroom.

But can this advantage be parlayed into a shorter route to a degree? It should be. Because right now, young people interested in becoming architects are asked to carry a large part of the cost of professional education. What if that cost were more equitably shared as it is through co-op?

The success of this option depends on other players as well, however. Among the potential obstacles to change are the National Council of Architectural Registration Boards (NCARB) and the National Architectural Accrediting Board (NAAB). Both, along with the American Institute of Architects, will have a say in how these changes affect the transition of young people from students to architects. If they do not accept the need to shorten the education process, and more equitably distribute its costs between students and firms, they will be seen as preventing the proper development of the next generation of designers at a moment when they are very much needed.

Interestingly, universities, never much in the





vanguard of change, will adapt to the online education world faster than the professional organizations will. NAAB will need to hear from the schools of architecture whose accreditation it oversees to reduce the amount that it requires of students to learn in school, and NCARB should allow more to be taught in firm offices.

The opportunities associated with this change seem enormous to me. The most important is working to make what we teach in architecture school less idiosyncratic and site specific, and more scalable. At Northeastern University, we have been moving the intellectual center of the School of Architecture toward more scalable ends for some time. In our design studios, lectures, conferences, and research, we actively seek problems that are endemic, rather than one-of-a-kind situations that require a completely custom solution. We think that today's problems of affordability, flexibility, and sustainability are significant enough to warrant this attention.

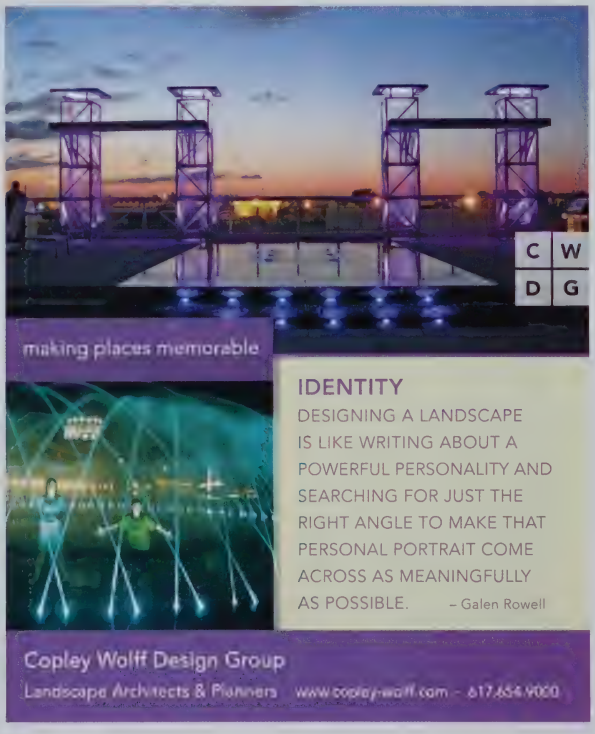
One consequence of moving toward more scalable delivery is that schools will need to define their methodology more clearly for prospective students. Today the stand-in for a clear method is often the promise of proximity to a single, famous practitioner, but this may not be satisfactory when dealing with larger numbers of students, especially across large physical distance.

Instead of being everything to every student, schools may be encouraged by this new model for architectural education to focus more completely on a particular topic, and more rapidly develop true expertise. At Northeastern, we have chosen to create an online library, and we envision adding to this as a way of more effectively disseminating our research. All schools use the Web for communication, but our goal is to reinforce our commitment to the prototypical solution over the one-of-a-kind situation.

Many of these changes will be discomforting, as they will challenge long-held approaches to the education, socialization, and preparation of our young people for careers and lives beyond. But as with the creative destruction that often benefits the business world, this transformation of architecture schools will bring exciting new opportunities.

And like our friend at Starbucks, we may not always like the first onset of change. Maybe we really like the comfy chair. But it's time to move up to the big table and start the new conversation. We're taking analog architectural education into the digital, scalable generation. Who knows? Maybe the next thing is an architecture course going viral online, and wouldn't that be interesting? ■





Life After Arch 101

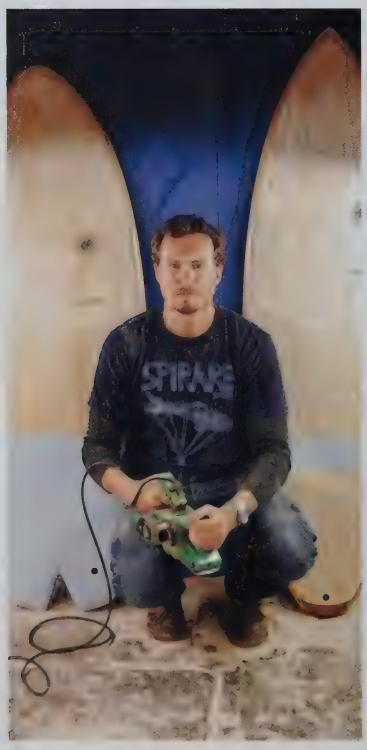
Four graduates take their skills elsewhere

BY JULIE MICHAELS

Why must an architect be defined as a designer of buildings? Where is it written that a talent to visualize the three-dimensional must be limited to the creation of structures?

Any number of trained architects have taken their skills into related fields and triumphed. Robert Wilson, the avant-garde director and playwright, earned his architecture degree from Pratt Institute. Tom Ford moved into fashion design after studying architecture at Parsons School of Design. Before he invented the artificial heart, Robert Jarvik studied architecture at Syracuse University.

Yes, architecture has been thoroughly flattened by the explosion of the housing bubble. But a less-recognized development is the growth of related careers for those with a talent for design. Even as the profession has contracted, the value of a good architecture education is never wasted. Here are four designers who took their triangles into other fields.



Kevin Cunningham

Spirare Surfboards
RISD '05
www.spiraresurfboards.com

Growing up in Baltimore, Kevin Cunningham had two passions: making art and surfing. He was the kind of kid who drew in his notebooks during high school lectures and surfed on the Maryland shore all summer.

Cunningham, now 30, was drawn to study architecture at Rhode Island School of Design (RISD) in Providence precisely because of its emphasis on design. "That whole first year, we never designed a building," he says. Instead, students focused on design basics: "how you approach a problem and find a solution."

During his junior year at RISD, Cunningham—still very much a surfer—decided to design his own surfboard. "A good surfboard costs around $600, and I didn't have the money." Cunningham was also turned off by the toxicity of most manufactured boards, which are made from polyurethane foam and Fiberglas resins. He set out to design an eco-friendly board that was also beautiful to behold.

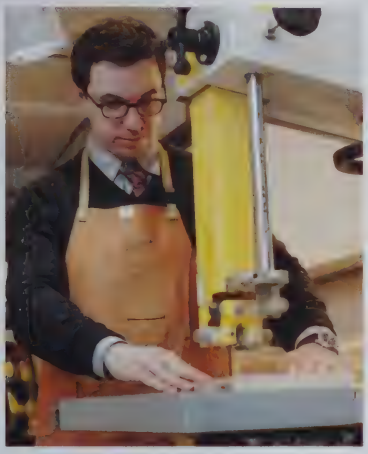
Board shaping remained an avocation for Cunningham—something he did on a small scale for friends and fellow surfers—even as he graduated and found work with a Connecticut architectural firm. Eighteen months later, the economy sagged and Cunningham was out of a job. He worked in construction management for the next three years but soon found he could earn just as well by designing surfboards.

Today, as CEO and sole employee of Spirare Surfboards, based in Providence, Cunningham turns out 150 to 200 boards a year. Each board must perform well, be environmentally sustainable, and be a work of art. Cunningham's boards have been featured in gallery shows throughout New England. He's twice been awarded grants from the Rhode Island State Council on the Arts and recently raised $3,500 on Kickstarter to help him design boards from marine debris—using driftwood, torn nets, and other ocean flotsam.

Cunningham believes his RISD education had everything to do with his success. "Our challenge was, 'How do you make good design?' I just took that and applied it to another discipline."

Brad Crane

Environmental Designer, IDEO
Harvard GSD '11
www.ideo.com



Brad Crane has hardly had the typical career in architecture. For starters, his architect dad gave the boy an AutoCAD program for his computer when he was 12 years old. Even when Crane was studying electrical engineering at Kansas State, he spent summers and weekends turning out three-dimensional drawings for the family firm.

"I sort of felt architecture was what I did before I went to college," says Crane, who spent eight years working as an electrical engineer for companies as diverse as Harley-Davidson and United Technologies before enrolling in Harvard's Graduate School of Design at age 28.

"I realized I was much more interested in exploring the space around me than I was in designing electrical circuits," says Crane, who graduated last year.

From the start, Crane believed that architecture offered him the most robust and systematic way of viewing the world in terms of design. "Architects like to think big," Crane explains. "They are used to thinking through the extended effects of the complex systems they've designed." He wanted to take that talent and apply it in a parallel universe.

Perhaps it's not surprising that Crane quickly found his way to the Boston offices of IDEO, the award-winning global design firm that promotes human-centered design. Working with business and the private sector, IDEO is most famous for creating the first ergonomically designed computer mouse.

As an environmental designer at IDEO, Crane enjoys being part of a design team that digs deep into a single project. "How do you design a medicine bottle that a person with arthritis can open?" asks Crane. "How do you design a better gas pump? These are small things, but the solutions have an impact on how we live."

Crane brings his architecture training to every design challenge. "There's a pragmatism to architecture," he explains. "You have to design multiple systems that work together, and it's exactly that perspective I rely on most."

Teman and Teran Evans

Dioscuri
Harvard GSD '04
www.dioscuri.us

Teman and Teran Evans spent their Friday afternoons this fall turning a class of Harvard architecture students into brand strategists. Their seminar, "Paper or Plastic: Reinventing Shelf Life in the Supermarket Landscape," asked participants to rethink the branding of peanut butter, mouthwash, and other basic consumer products. Such nonarchitectural challenges reflect the broad definition these identical twins apply to their own diverse design practice.

"The challenge of architecture is to solve a three-dimensional problem," says Teman (pictured, sitting). "Some days that problem is the scale of a building, some days it's the scale of a city, and some days it's just something you can hold in your hand."

The twins, 33, developed their design perspective while interning at the Rotterdam offices of architect Rem Koolhaas. Instead of putting his interns to work on building projects, Koolhaas had them design catwalks for a Milan fashion show and help with a competition for the Beijing Olympics.

"Rem used to say to us, 'I don't know why you architecture students all want to pass through the same narrow door,'" says Teman. "There are so many other ways of working in design."

After graduating from Harvard, the brothers took the advice of their mentor by launching Dioscuri, a design firm that addresses a multitude of interests. First, the pair tried furniture design and then switched to textiles, finally scoring with a design for colorful wooden bracelets that caught the eye of Oprah Winfrey. "We taught ourselves everything, from manufacturing to marketing," says Teman, who claims the experience was better than a graduate degree from Harvard Business School.

Their success, combined with an appearance on HGTV's popular series *Design Star*, has helped the brothers expand into product design, brand consulting, and interior design. Teran runs day-to-day operations in New York City, Teman teaches at the University of Michigan's Taubman College of Architecture, and both have lectured at Harvard's GSD.

The brothers view their practice as a raspberry to anyone who claims architecture is a dying profession. "If you're talking about brick-and-mortar buildings, sure," says Teman, "but that skill set has such a wide array of applications."





Natasha Case

Coolhaus
UCLA '08
www.eatcoolhaus.com

Think ice cream. Think famous architects. Think ice cream flavors named for famous architects: Frank Behry, Mies Vanilla Rohe, Richard Meyer Lemon, I.M. Peinut Butter, Louis Kahnteloupe, Norman Bananas Foster. Now throw in a "floor" and "roof" of chocolate chip or oatmeal cookies and what have you got? Coolhaus, a designer ice cream sandwich company that has 50 employees, revenues of $3 million last year, and a fleet of pink and white food trucks selling to eager customers in New York, Los Angeles, and Dallas.

No one is more surprised at the success of this "farchitecture" (food+architecture) start-up than Natasha Case, Coolhaus CEO. "It was just a hobby, an art project,"

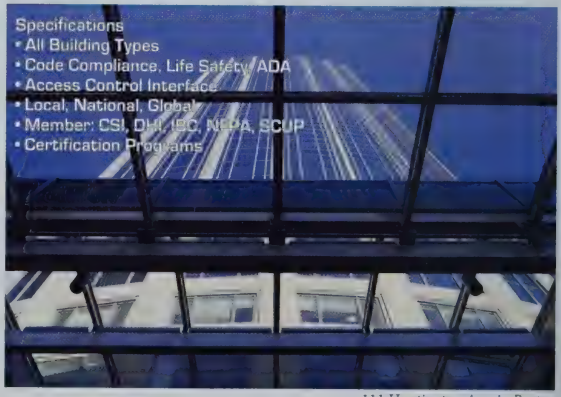
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111 Huntington Ave. in Boston

explains Case, 28, who produced her first batch of ice cream sandwiches as a treat for colleagues at Disney Imagineering, where she worked after graduation as an intern in hotel design and master planning. "Everybody was so down about the recession and afraid of losing their jobs. I added the funny names for comic relief."

When Case made more ice cream sandwiches to sell at a crafts fair, her friend Freya Estreller—now Case's Coolhaus partner and wife—immediately saw the business potential. The two women bought a 20-year-old postal van on Craigslist, had it retrofitted and painted silver and bubblegum pink, and began selling their ice cream sandwiches at music festivals and museum openings. Word spread and the business blossomed, growing at a rate of 300 percent a year.

Case doesn't feel she's left architecture behind; she's just expanding its footprint. Having written her master's thesis on mobile food, the architect sees her Coolhaus trucks as a way of breaking down the geographic confines of fixed, traditional retail locations. She even presented her ideas on the subject at an AIA conference in Los Angeles last year.

Case also sees her ice cream "houses" as a way of making architecture more fun and accessible. "Architecture has a way of being so esoteric that we forget that it's a public profession," says Case, whose trucks invite customers to read about well-known architects while they wait for their orders. There are even plans to make popsicles from molds shaped like famous buildings.

In the meantime, you can't keep the architect in Case down. She's used her skills to design a retail store, the company's website, and all its (edible) packaging. Her most cherished business moment? Seeing the real Frank Gehry stand in line at a Coolhaus truck, waiting to sample her wares. ■

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Kevin Cunningham. Photo: Meghan Dove.

PAGE 33
Brad Crane, Teman and Teran Evans. Photos: Tony Rinaldo.

OPPOSITE
Natasha Case. Photo: Jolie Ruben.

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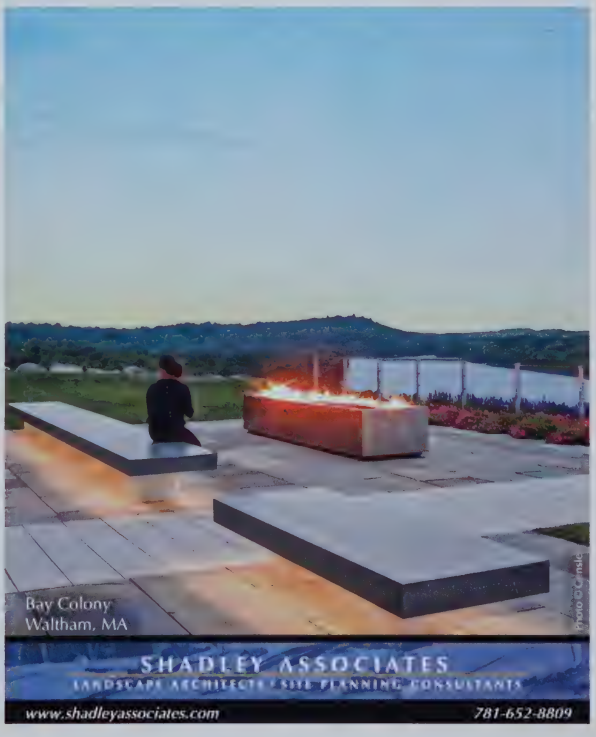
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Design for Dignity

Design in the public interest sets a new course

BY GRETCHEN SCHNEIDER AIA



"Most of [the students who choose to be activist architects] are not the really good students. Because it can also become an excuse and an easy option."
— Farshid Moussavi, architect and Harvard educator, during a panel discussion in London last March.

I recently sat down with Julia Buzan, a young Yale graduate who wants to pursue architecture in graduate school. Buzan majored in international economic development, has worked overseas, and crafted an undergraduate thesis that devised ways to assess the impact of economic development investment in particular communities. In architecture, she sees the opportunity to think imaginatively about the future, rather than simply responding to past data. She wants to work in collaborative, interdisciplinary teams that directly connect with the audiences they serve and to use her analytical tools as a means to evaluate and improve the impact of design. If Buzan represents the type of student now entering architecture programs, I couldn't be more optimistic about public-interest design and architectural education.

Excuse me, Professor Moussavi, but the times, they are a changin'.

Over the past year, publications from *The New York Times* to *The Huffington Post* have described the surging trend in public interest design, including among students and schools of architecture. "Public-interest design," "community-based design," "socially responsible design"—these terms are used interchangeably, but underlying all is the belief that good design can improve the lives of regular people and that these regular people should have a voice during the design process.

Despite the popular image of Gregory Peck's character in *The Fountainhead*, Architecture (with a capital A) is not something cooked up by the singular genius, imposed on a naïve or ignorant public; rather it's a discipline to be developed through listening to the people whom the structure or product or landscape or neighborhood will serve. That's not to say that design training doesn't matter and that architects shouldn't play a leadership role, but the attitude is fundamentally collaborative. It's design for—and with—the 99 percent.

Can public-interest architecture be taught? Of course! The same qualities that make a good architectural education also make a good public-interest architectural education: a broad liberal arts foundation; the ability to work across disciplines; an enthusiasm for diverse ideas; an awareness of the many contexts of design (economic, political, social, technical, historical), a desire to wrestle with those competing influences, and an ability to incorporate multiple agendas into a coherent, compelling architectural form; an entrepreneurial spirit; a desire to listen carefully, and the skill to apply that insight; good communication, both graphic and verbal; effective collaboration and teamwork. The lone genius need not apply.

OPPOSITE
A student in the Massachusetts College of Art and Design's community design and build studio works on a roof trellis structure for an outdoor classroom at the Dennis C. Haley Elementary School in Boston.

ABOVE
The Rose Lee House (Footwash Alabama), designed and constructed by second-year students of Auburn University's Rural Studio program. Photo: Timothy Hursley

RIGHT
Another Rural Studio example: a mobile concession stand for Lions Park (Greensboro, Alabama), designed and constructed by three fifth-year thesis students. The Rural Studio blends innovative design with social activism and has inspired many similar endeavors. Photo: Timothy Hursley



Perhaps the better question about teaching public-interest design is: When?

Michael Meo has just finished his third semester of "core" curriculum in the Master of Architecture program at Harvard's Graduate School of Design. The core experience is somewhat akin to sixth grade, when one shares the same courses with the same students; electives don't come until later. Most professional architecture programs follow a similar curricular pattern because no matter their ultimate specialization, all students need to learn the basics of design principles, structures and other building technologies, architectural history and theory, and techniques of representation. It's a time ripe for indoctrination and a time when individual brilliance often seems to prevail.

Meo comes from Hampshire College, a curriculum in which students design their own path. It couldn't be more different from GSD core. His senior thesis included orchestrating a community-based design process, ending with the student-led design, construction, and transformation of the Hampshire College Library. He's explored participatory design in international contexts as well, having been selected as a US delegate on teams that worked in the Philippines and Korea. He chose the GSD over other elite masters programs because he was turned off at the beautiful but vacuous student work and paternalistic attitudes he saw elsewhere. The GSD seemed to offer the place where he could most vigorously pursue his passion. But core?

I expected Meo to hate the experience. Instead, I found him to be happy and thriving. His studios so far have focused on the language of architecture and its geometry; even his most recent "comprehensive" studio included only technical considerations. Any social context has been completely brushed aside. Yet this public-spirited student appreciates that he's developing a skill set in a certain kind of vacuum, and that he'll ultimately be able to apply this rigorous process in many different ways. His recommendation for change is for instructors to be more explicit about the vacuum. The vacuum of school is a precious opportunity, as long as students don't confuse it with the real practice of architecture.

And he's "really thirsty" to get to his upper-level elective courses and options studios, where he will be able to pursue courses in participatory design and work directly with communities.

During my graduate school days of the 1990s, there was a perceived divide that echoed Professor Moussavi's sentiment: good design vs. design that did good. The



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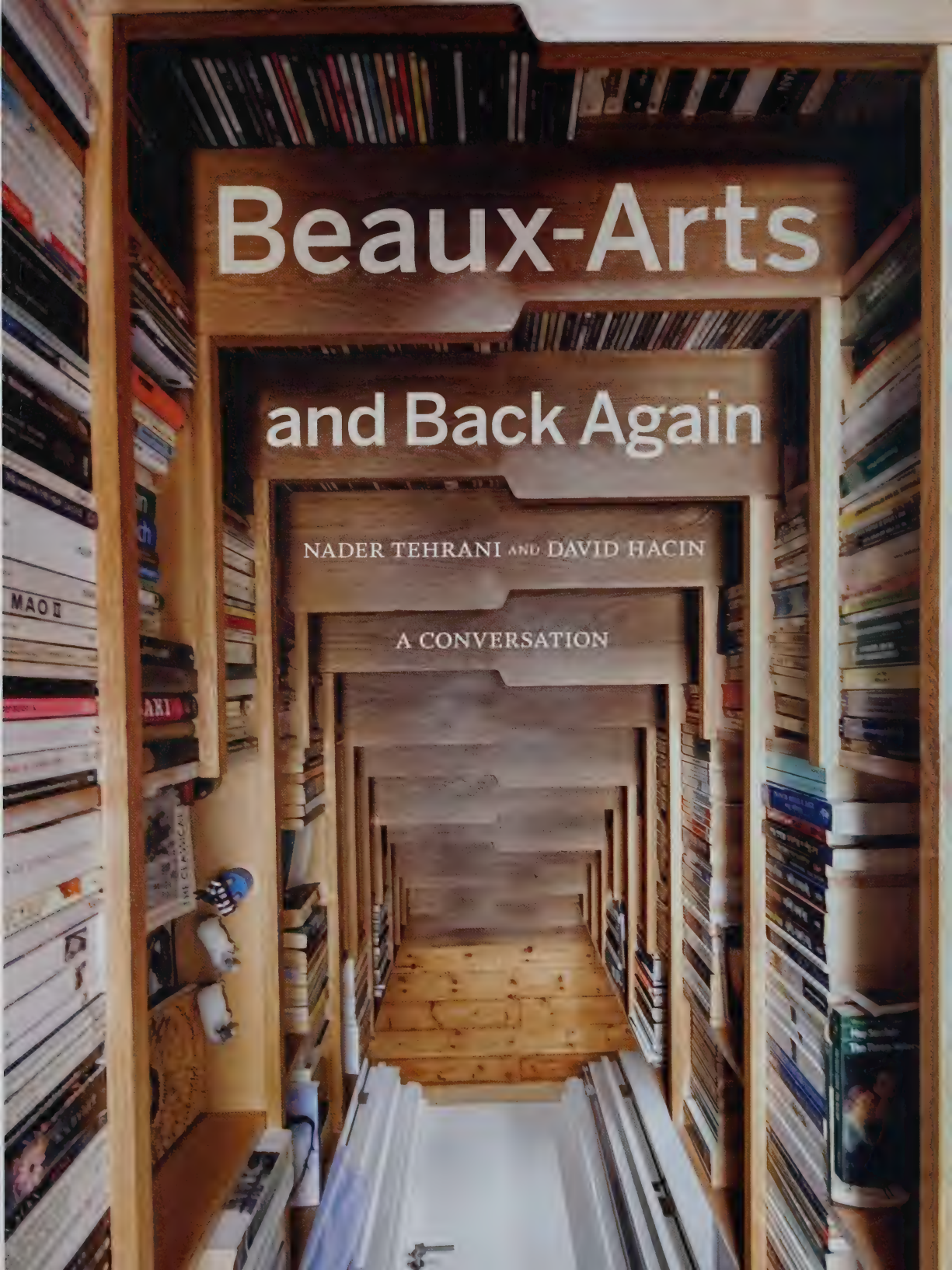
Rural Studio at Auburn University in Alabama changed all that. In the now-famous program, launched by the late Samuel Mockbee in 1992, sophomore and thesis students may apply to spend a semester living, designing, and building in Hale County, Alabama, one of the most impoverished in the United States. From its inception, the Rural Studio has insisted that students create designs that are both architecturally innovative and socially conscious.

Over the past 20 years, the Rural Studio has published, exhibited, and promoted its work widely. Legions of design students have noticed and have been inspired; no doubt administrators, too. In his current introduction to the GSD program, Harvard dean Mohsen Mostafavi writes: "Our program has a social dimension. ...The complexities of contemporary global and environmental issues—the impact of rapid urbanization; the scarcity of resources; the after-effects of disasters, both natural and manmade; and the continuing inequities between the rich and poor nations of the world—require solutions that are both imaginative and emancipatory." It appears that the good design/design good divide has largely dissolved.

A fundamental shift of thinking has emerged: Design that does good on social grounds needs to be good design on aesthetic and technical grounds as well, and deserves a seat in the spotlight alongside other design specialties. The five-year-old Curry Stone Design Prize, for example, aims "to make the talents of leading designers available to broader segments of society and to inspire the next generation of designers to harness their ingenuity and craft for social good," as it dispenses $125,000 annually. On the GSD website, one can now search for faculty, courses, and projects under the theme of "activism," just as one might search for "speculation" or "sustainability." Of the 72 independent student projects published, two-thirds tackle public-interest or community-based topics, from working with local farmers in rural Damascus, Syria, to constructing a temporary storefront library for Boston's Chinatown neighborhood. Of those, 21 are officially classified as "activism." Clearly, there's robust student interest right now.

In contrast, of the 85 faculty projects published, only two are classified under "activism." Whether this reflects a true lack of interest or a statement of work deemed worthy of tenure is unclear. Regardless, lingering attitudes such as Professor Moussavi's couldn't be more wrong. Working in public interest begs for the best students and is attracting them. It's the attitudes that need to catch up. ■




Beaux-Arts
and Back Again
NADER TEHRANI AND DAVID HACIN
A CONVERSATION
MAO II

In 1881, the architect and scholar Leopold Eidlitz wrote that to prepare for professional life, the student of architecture must "master the mathematical and scientific branches taught in modern polytechnic schools, make himself proficient in drawing, attend an academy of architecture, and then become, in succession, a good carpenter, mason, stonecutter, painter, sculptor, and decorator." But as human life is too short for all this, Eidlitz concluded, one must reduce the question: "Shall the pupil of architecture be educated in some mechanical workshop, in an art studio, or a polytechnical school?"

Given that this debate has dogged architecture education for more than 100 years, we asked **Marc J. Neveu**, associate professor at Wentworth Institute of Technology, to delve into it with two thoughtful leaders of the profession: **David Hacin** and **Nader Tehrani**. Neveu interviewed them late last year.

OPPOSITE
A bookcase staircase, created for a private residence by Levitate, a London-based architecture and design studio. Courtesy Levitate. levitate.uk.com.

Marc Neveu: Considering what Eidlitz had to say in 1881, what is the responsibility of an architecture department today to prepare students for professional practice?

Nader Tehrani: What's remarkable is all the other things that quote overlooks that we consider indispensable to the study of architecture today—history, anthropology, sociology, among other things. But to some degree it also asks the question: Does expanding the terrain of architecture to be inclusive of everything automatically equip a student to become a good architect? Or is the best architect the one who is able to interpret and edit the world in strategic, deliberate, and incisive ways?

David Hacin: Determining what it takes to be a good and a successful architect can be linked to other aspects of that question, about the business of architecture, working with clients, and convincing people of your ideas—skills that are absolutely critical to being able to make manifest the ideas that are born out of this broadened exposure to history, anthropology, and sociology.

Marc Neveu: But if we expand the field, what's left to define it? Aren't there certain skill sets, modes of knowledge, and histories that are specific to architecture and must be taught in the professional model of education?

David Hacin: Absolutely. Architectural education is rooted in design skills and being able to represent those skills and develop ideas through the making of form. The question is less about whether this is an essential characteristic of study than what else is needed in architectural education to support that goal. The criticism is that some programs are either almost exclusively design-oriented or primarily technical. So what's needed to make architectural education a generally broader topic?

Nader Tehrani: In that period [1881], there were two strands of architecture schools that emerged, one from the Polytechnic and the other from the Beaux-Arts. They had very different emphases. With Modernity and the end of World War II, there was also the advent

of specialization, where the architect began to lose his or her control over the related fields of architectural disciplines. Today teams are composed of not only an architect but also 15 to 20 specialized consultants. This has effectively changed not only how we practice but also how we get there in the first place.

The nature of schools took huge twists and turns over the same period, not only expanding the curriculum in certain technical or historical courses but also in absorbing the role of theory as a central part of discourse—as in the '70s and '80s when linguistics, structuralism, and philosophy took on a greater role in forming architectural thinking. How is all of that really relevant to what we do when we're drafting up a house in the suburbs? I'm not always sure. But it's arguable that we must be conversant with the other issues, above and beyond formal-technical ones, that are culturally relevant.

Marc Neveu: Today, we do have an incredible amount of specialization. Architects specialize in healthcare design, or stadiums, or other building types. Do you think that students should specialize?

David Hacin: No, but they should be aware of what is out there and how significant the choices they make early on will be in terms of charting their career path. Schools aren't adequately preparing students by giving them a real understanding of the current professional landscape. And in a global arena, the professional options available to someone in Massachusetts are very different than those available to someone in Malaysia.

Nader Tehrani: You have to use education as a way of building up thinking skills, interpretive skills, creative skills. Those skills become, in a way, calisthenics for all the things that we do not know are going to happen five years from now. How do you develop curricula that are conversant with the things students actually need to learn for today, while opening up channels for all of the things we can't even imagine yet, which will replace what becomes obsolete in a few years?

David Hacin: Theoretically, the goal of the US undergraduate system is teaching students how to think. Then, when you move on to a professional school—whether it be law or medicine or architecture—you are learning how to practice very specifically.

[After graduate school], you end up having learned how to think, and maybe even refining your design abilities, but you haven't really developed enough practical understanding or professional expertise to hit the ground running. This is a particular concern to me now because there are other factors at play—the cost of architectural education, for one. Young architects are graduating with insurmountable debt. And they're moving into a profession where the financial rewards are limited. Unless we want architecture to remain a profession for the well heeled, we're setting people up for failure in some cases.

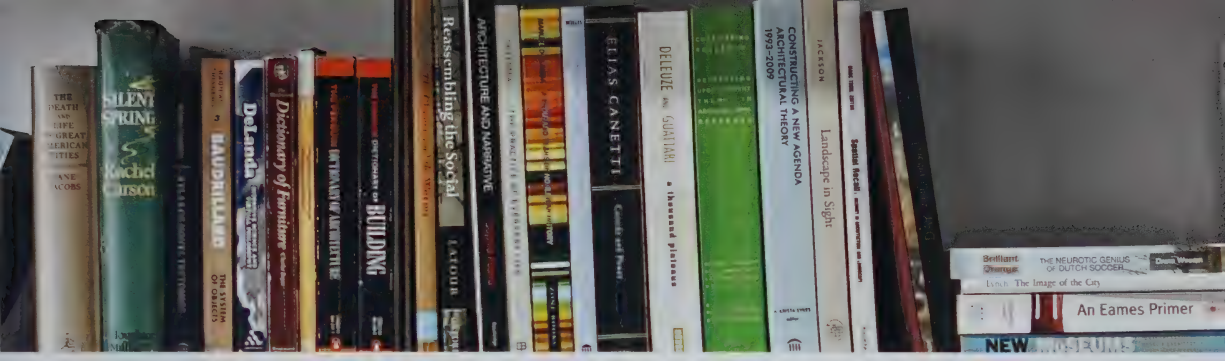
I hate to be so mercenary, but what is the value proposition here? I'm hearing that game design, for example, is sucking up a tremendous number of the most talented design students because they see a financial horizon there that they don't see in architecture.

So much has changed. Do you think that a student who was attracted to the architecture profession 25 years ago is the same student who's attracted today?

Nader Tehrani: It's a different person, because culture has changed significantly. At the same time, it is a tall task to ask any student why they are, at the age of 18, choosing any profession. To some degree, as young applicants, we all mythified what "architecture" was, and we were innocent of the actual conditions of practice. But operating within those myths is part of the charm of growing up.

David Hacin: I was different because I thought I knew exactly what I wanted to do and how I wanted to do it. My father was an architect, and I wanted to have a practice like his; but that form of practice doesn't really exist anymore. One is forced to adapt one's expectations.





I ask students who interview with me what they would like their architectural career to look like. Almost without exception, they talk about having their own practice; that's their dream. And I have to believe that their motivation for studying is built around that reality—or perhaps mythology.

Marc Neveu: The Fountainhead-ache.

David Hacin: The image of the master operating in his own practice.... Yet the schools do very little to prepare students for what that means. There is increased specialization, midsized firms are being squeezed out, small firms have trouble staying on the cutting edge of rapidly changing technology. [If I were] a student, I would like to know about these issues, not necessarily in depth, but enough to be able to make informed career choices.

Marc Neveu: The role of research in architecture has shifted quite dramatically. There is no longer only the model of the humanities, leading to a PhD. You have efforts like the [Harvard GSD] Koolhaas Project on the City, where there's a lot of information gathering but it's a design-based thing. Then you have the [MIT] Media Lab, where there's a kind of interdisciplinary, project-based approach. Could research promote a new form of practice?

David Hacin: Absolutely. Researching innovation as a form of practice is very compelling, and it's certainly going to advance the profession. However, let's remember that the vast majority of architecture students are moving into conventional practices that are not research based and that do not dedicate what limited profits and funds they have to research. The architecture profession has got to figure out a way to both support and promote the research and innovation that is going to make practice more relevant in a 21st-century world, and still make sure that we are advancing more normative practice models—making them more relevant to the economic model of our country, which is not particularly supportive of research and innovation-based methods.

Nader Tehrani: You've outlined several models of research, but I also consider certain very conventional things that we always and already do to be research. Drawing, for example, is research for me; drawing a project on the oblique, from the outside and inside is a way to research how the building turns its corners. Only an architect can come to appreciate the discrete resonance of this task as a piece of research.

Research is also instrumental. It is an alibi for what we do, the ammunition. Students need to be equipped with all levels of understanding how we interpret research, because the conventional architect will need to stand up to the contractor, a project manager, or a city agency and be able to present narratives that are relevant for all of them, and in a convincing manner. For instance, researching the means and methods of fabrication in a proactive way is more important than ever for a designer today; it is the only way to construct a meaningful dialogue with both fabricators and value engineers on the one hand but also a way to defend design in the process.

David Hacin: In this conversation we've talked a lot about critical thinking in architectural schools. But we haven't talked very much about implementing critical thinking more broadly.

My concern is that we are moving toward having architecture students who are less and less reflective of the broader society that we live in, both economically and demographically. The criticism that's been often laid at the doorstep of the academy is that it's an ivory tower of folks who can afford to indulge themselves in thinking about things that have limited relevance to the majority of citizens. If we don't expand the base of students who are coming into our profession to reflect the shifts that are occurring in our country, I think the architectural profession has the potential to become the GOP of the next decade—more and more detached from the rest of society. This is where I come back to the issue of how we compare with the medical or legal professions.

Marc Neveu: The one major difference is that if you're

ABOVE AND OPPOSITE
A bookshelf in the North End home of architects Diana Tomova (KVA) and Parke MacDowell (NADAAA). Photo: Parke MacDowell.

a law associate, you need to have passed the bar. If you don't pass the bar, you don't work. Architecture does not have the same requirement. Further, to get a building built, you do not need an architect. We've driven ourselves out of the equation.

David Hacin: We let that happen, and we continue to let it happen. We don't really seem to have any great interest in correcting it, either.

Nader Tehrani: Arguably architectural education is the only education out there that is based on a "crit" format; we do more teaching and learning by debating, interpreting, and critiquing. It's almost like the legal profession. You may know that your client is guilty, but you're going to present the case of why they're not. Presenting a design is almost always like that. Because you know that there's no foolproof reason why anything has to be the way it is, and yet you have to present to the client, the community, the engineer, a narrative that is convincing.

David Hacin: So then why do we do make our case so badly as a profession?

Nader Tehrani: When you and I went to school, the architectural profession was comparatively narrow. Now, architecture and design is everywhere because of the Internet. It's arguable that design is at its peak in terms of relevance. The accessibility of architectural images and content is ever-present, for young designers and clients alike, making design more popular than ever before. In turn, this has made it even harder to raise the stakes of good design, critical thinking, and discerning judgment.

David Hacin: Design is so available that there is no longer that sense of having to explore an idea, get to an idea—the work that goes behind making a building. Everyone is so attached to image now, that creating the image of the building is all they think we do, when in fact there's so much more that we do and so much more that we understand.

Nader Tehrani: And you want to be able to explain to the client the integral relationship between the mechanical, structural, and spatial relationship of a building as if it were relevant? We care about that, but nobody wants to listen to that.

David Hacin: No, but this helps explain the importance of

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licensure and the responsibility that schools have to promote it. To a client, a license means that you should know how to do all of that. It's shorthand, and it has real value.

I think we need to give our students the tools to be effective. First of all, not everyone is as talented as the next person. I'm not sure you can teach design talent. That doesn't mean that architecture students who maybe are not the best designers can't have a lot of impact on the profession or have a lot of success in other ways. But is architectural education too focused on the brilliant designers and making sure they achieve success?

Nader Tehrani: The architectural license is practical to have, but it says very little about the relevance of building meaningful bridges between education and practice. I have tried very hard to serve as a model for this very issue. If there's a pattern I've been able to identify after my 20 years of teaching, it's that out of an average-sized studio of 12 people, I've rarely been able to impact the so-called one or two brilliant designers in the studio, and I probably could not have much of an impact on the one or two people on the bottom who had very little initiative or ability to see visually. But education has nothing to do with talent; it has to do with the other eight, nine people, to whom you do teach design skills. You do teach instruments. You do teach agency.

Marc Neveu: One final question: After being out of school for several years, what do you wish you had learned in architecture school that you did not?

David Hacin: I wish I had learned how much I would have to rely on others in both building buildings and building a practice. My architectural education was very rewarding, but it was a very solitary experience. Being out in the world and having a practice, it's anything but. I hardly ever have time to be alone in my own head with anything. I wish I had understood that a little bit better, not because I would have done anything differently, but because I would have been better prepared.

Nader Tehrani: What I lacked was a program that could demonstrate that everything is design, beyond design: The mechanical and structural systems, which seem to be accessory courses but in fact are the only thing I'm focused on today. Budget, structural engineering, and environmental systems are the three creative areas of design that are commonly overlooked in the context of school but become absolutely dead center when you're doing anything. ■





DEFENDING YOUR LIFE

TEXT BY **LIAN CHIKAKO CHANG**
PHOTOGRAPHS BY **TONY RINALDO**

Lian Chikako Chang is studying for her Master's in Architecture at Harvard's Graduate School of Design. She has a bachelor's degree in art and design from the University of Alberta and a PhD in architecture from McGill University.

www.tonyrinaldo photography.com

OPPOSITE
Stephen Akerblom carries his work to his review.

MORE ONLINE
architectureboston.com

People say that love is the opposite of fear, but then, they've never been to architecture school. As the date of a final review approaches, we students throw ourselves into our work with an intensity that can be explained only by a mix of love for our projects and fear of public humiliation.

Days before my first advanced studio review in 2011 at Harvard's Graduate School of Design, our professor, Marion Weiss, gathered us up—beyond fatigue and on the edge of meltdown—and announced that these were the best moments of our lives. We scoffed, but in a way she was right. When your excuses, your bodily aches, and the activity around you fade, you are left with nothing but an intimate dialogue with your work. It's a funny thing that we best sustain this rapt state under the external pressure of deadlines and a rivalry of the kind only siblings and the closest of peers can inspire.

At noon one day in early December, just before final reviews were to begin, several students in Wentworth Institute of Technology's graduate architecture studios remained in this state of immersion, while others gathered up their work and made their way to the auditorium.

Stephen Akerblom, a final-year Master of Architecture student, was finishing up a video. "It was pretty much down to the wire," Akerblom told me later, explaining that after a challenging series of conceptual exercises, his building design had come together just in the final week or two.

Call it a crit, jury, or review: Architecture students present their work to a panel of practitioners and professors, and then endure whatever verbal jousting unfolds. This rite of passage, lasting typically 20 minutes to an hour, has occupied the center of architectural education for decades. What justifies it is the notion that, beyond fluency with construction details and an intuition for the subtleties of inhabitation, architects need to be able to stand and deliver a proposal, even when they're outnumbered and outclassed.

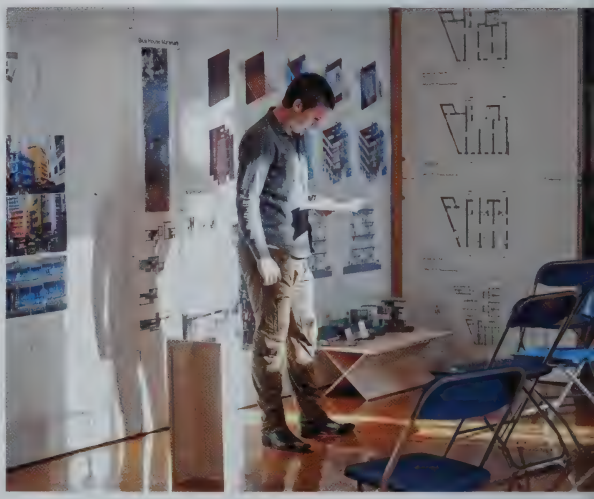
I always feel relief when I stop making things and start transporting them, and myself, to a review. Leaving behind the rancid studio atmosphere of solvents, stale coffee, and unwashed clothes, and heading toward an arena of judgment and intellectual exchange, the rush of adrenaline does wonders in washing away



ABOVE
Chris Bonarrigo finishes a model in Wentworth's graduate architecture studio.

ABOVE, RIGHT
Douglas Martin and Michael Wojnarowicz carry their studio's site model across Parker Street to Watson Auditorium.

RIGHT
Stephen Akerblom reviews his notes before his presentation.







doubts and sharpening faculties. At Wentworth, this transition took the form of a literal breath of fresh air, since the auditorium where the reviews were scheduled was across the street from the studios.

In the auditorium, partitioned for rotating reviews, drawings were pinned up and models arranged with the help of friends and classmates. Akerblom was slated to present first, and he paused in front of his work—a block of mixed-use housing micro-units—reviewing his notes one last time. His studio, led by assistant professor Jennifer Lee Michaliszyn, was called Hong Kong Express, a play on the title of Wong Kar-wai's film *Chungking Express*. In developing their architectural strategies, students started with his films and their own videos of their dense, bustling sites.

When it was time to present, Akerblom led with his video. "The movie was supposed to show the layered quality and how each one of these surfaces has a real depth to them," he said. "Then this model tries to assign these materials a tectonic quality … the brick as the load-bearing party walls, the timber as the lower flooring, the blue paint as a building envelope. My project starts to expand this building envelope, essentially treating the interior space as a thickened façade."

There's a moment in every review when the momentum shifts. A critic interrupts with a question and stands up to scrutinize a drawing, or the student hands over a model and cedes the floor. The critic turns the model or holds it up to squint into its depths, and everyone waits for the verdict. From here, the review can go in any direction. The days when a critic could

express dissatisfaction by smashing a model to bits or setting it on fire have almost entirely passed, but a critic's words can still cut pretty deep.

This group of critics eased into things gently: "Could you talk just briefly about this interpretive model that started everything; maybe explain it in a more linear fashion? Was there a set of rules?"

Akerblom answered the best he could: "I started by trying to represent the existing materials. ... So you have the brick, which is this really heavy structure in the middle; and the blue is the wrapper. ..."

But no question in a review is entirely innocent, and one critic picks up where the other left off: "What do you think of the mixed-use housing? Why is that a good program to test out your ideas related to surface, materials, and infill?"

Akerblom seemed eager to expand: "The micro-unit was a good program because the spaces are compacted, and each surface has to hold more depth and program within it. There is a kinetic element ... like the Murphy bed. When it flips up into the wall, you're essentially making a thickened wall—"

"—Where is that?" The cross-examination begins in earnest.

"—I didn't, I have them planned in here but I didn't explore them at a detailed scale."

The critics proceed, taking turns elaborating on one another's critiques:

"—An obvious choice, so I'm not sure what mileage you got out of that."

"—The blue is still a kind of keying, instead of a pushing..."

"—If there was a sheet that diagrammed..."

"—Is that Hong Kong, or is it LA? You don't know."

"—There's also a temporality to the architecture that I don't see."

At this point, the floor is no longer yours: You are by design outnumbered and outclassed. The reviewers enjoy holding forth. Each is eager to provide his or her advice, criticism, and praise, but in such a besieged state, it takes a fair amount of effort just to stay vertical and maintain eye contact. When the time is up, the professor makes appreciative comments about the work and conversation. Classmates offer their commiserations and congratulations.

In the hours after a review, it's easy to feel off balance. Emotions loom larger than usual: relief, pride, disappointment, and an overwhelming fatigue. There will be time, later, to reflect. For now, a semester's worth of work is carried back to the studio, each artifact bearing the weight of judgment while also suddenly light and insubstantial. Some items will be gladly tossed, while others will be treasured, like comrades returning from war. An architect's love is a strange thing, indeed. ■







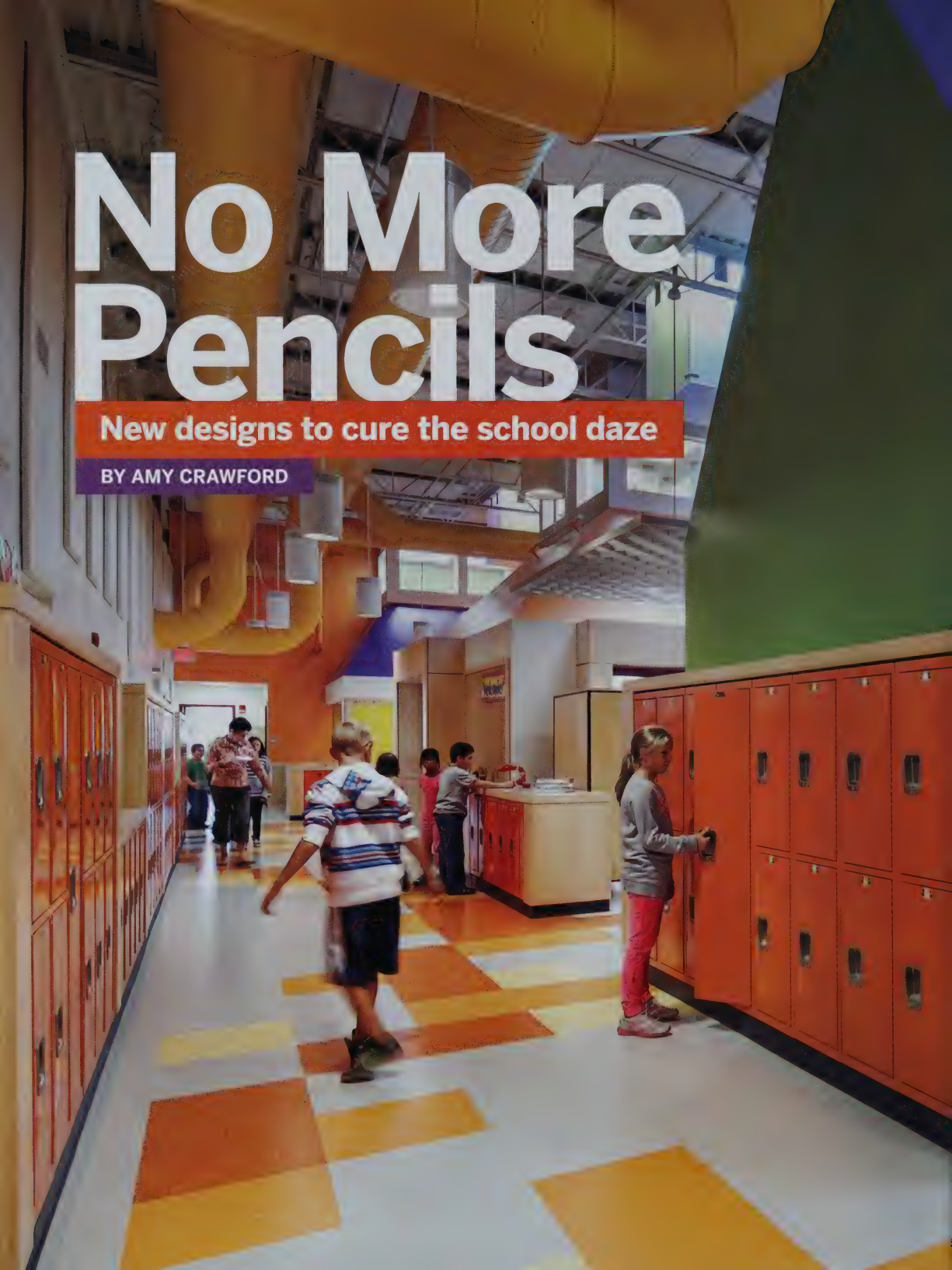




ABOVE
Corey Roberts presents his project to (seated, left to right) classmate Ben Leedy, professor Weldon Pries, and visiting assistant professor Zenovia Toloudi.

FAR LEFT
Lucy Brown presents her model to associate professor Michael MacPhail as professors Ronald R. Bernier and Jennifer Lee Michaliszyn look on.

LEFT
Nicholas Gianetti presents his project to (left to right): professor Jennifer Lee Michaliszyn, associate professor Michael MacPhail, assistant professor Marc Neveu, adjunct faculty member Anne-Sophie Divenyi, and professor Ronald R. Bernier.



No More Pencils

New designs to cure the school daze

BY AMY CRAWFORD

It's just after lunch on a Friday, but many of the classrooms at Abbot-Downing Elementary School in Concord, New Hampshire, are empty. Instead of sitting behind desks as their teachers lecture, a handful of fifth graders are holed up in a nook by the stairs, taking notes on a whiteboard.

Two boys stand at a counter working on iPads, while other students are clustered around tables in a common area, discussing novels. Overhead, the sun streams in through skylights, and interior windows connect a double-height library with the second floor. The building, with its casual atmosphere and warm color palette—orange floors, yellow-painted ductwork, bright-green walls, and blond wood furniture—does not feel like a typical public school. And according to the architects who designed the new building, that was the idea.

In recent years, educators have begun to realize that traditional schooling may not work for every child. Many studies have shown that children learn best by working on open-ended, real-world problems. Schools have also embraced theories of diverse learning styles: Some children learn best in groups; others have trouble paying attention unless they're on their feet. Today, rather than forcing children to sit still and be quiet, teachers are assigning hands-on projects and allowing students to learn in whatever way suits their brains.





"We have different strengths and ways of learning," says Laura Wernick, senior principal at HMFH Architects, which designed Abbot-Downing and two other new schools in Concord. "How do you provide an environment where that can happen?"

In 2012, researchers at the University of Salford in England found that school design, including such elements as a flexible classroom layout, wide hallways, and interesting decor, can account for up to 25 percent of academic progress. The paper, part of an ongoing study of more than 20 schools in the United Kingdom, is consistent with other recent research, including a 2009 University of Georgia finding that freedom of movement and views of the outdoors correlated with higher test scores in reading, math, and science. Other studies have looked at such factors as the impact of color on memory and engagement.

OPPOSITE PAGE
The Learning Commons at the Abbot-Downing Elementary School.

LEFT
The Amphitheater at the Abbot-Downing School.

ABOVE
The cupola was reused from the school's predecessor.

All photos: Ed Wonsek.

MORE ONLINE
The Edgeless School, an exhibit at the Center for Architecture Foundation: www.cfafoundation.org/exhibition-tours



While researchers are still exploring the intricacies of design's effect on learning, their findings have already begun to reshape the classroom. "Schools of the past were set up for the way you and I went to school—the teacher at the front of the room, disseminating information," says Phillip Poinelli, an architect with SMMA/Symmes Maini & McKee Associates in Cambridge. "We're changing from teacher-centric to student-centric, from passive learning to active learning."

Poinelli pointed to the layout of a new high school his firm designed for the town of Grafton, in central Massachusetts. Instead of a long hallway with rows of classrooms on either side—what Poinelli called the "egg crate" floor plan—the Grafton school was divided into "pods," with several classrooms arranged around a common area that can be used for group projects such as rehearsing a play or conducting a physics experiment. The classrooms themselves can be easily rearranged to accommodate group work. "We haven't turned schools on their heads," Poinelli says. "When you walk in, they still look like schools. But when you look closely, there is a whole series of features that accommodates the learner better."

In addition to innovative floor plans, those features can be as simple as an emotionally engaging color palette and the right kind of lighting, says Lorraine Maxwell, a professor of design and environmental analysis at Cornell University. She is studying the Concord, New Hampshire, schools as part of an inquiry into the effect of design on learning. Maxwell's previous research has found that the way a school looks—the patterns on the walls and floors, for example—can influence how well students engage with their lessons.

"What the research generally finds is that a moderate amount of complexity is best," she says. "Too little is boring. It doesn't encourage kids to want to explore, to be active and excited. Too much complexity is overwhelming."

In the same vein, sunlight and views of the natural world may help children learn. A 1999 California study of more than 2,000 classrooms found that students exposed to the most daylight did 20 percent better in math and 26 percent better in reading after a year than students in classrooms with the least.

These principles were put into practice at the John D. Runkle School, a public elementary school in Brookline, Massachusetts. As part of a renovation project that wrapped up last year, architects at the Design Partnership of Cambridge brought the outdoors in, with glass walls that look out to a courtyard garden. In the classrooms, large windows provide natural light, while an angled ceiling ushers it inside.

"The ceiling is a very inexpensive way to get any light that enters and bring it deep into the room," explains Robert Bell, the lead architect of the project. "It's also about avoiding contrasts, light and dark."

The lighting, as well as the school's acoustics and muted blue and green color palette, were engineered to minimize children's stress and distraction, says



THIS PAGE
More views of the Abbot-Downing School.

All photos: Ed Wonsek.

Bell's colleague, David Finney. "Making the classroom a calmer environment, reducing the level of visual stimulus so that it's not overpowering, has been proven to lead to more retention."

Although it is too early to say whether children at Runkle are learning better, kindergarten teacher Tanya Paris says that she has noticed a change since the teachers and students relocated to the updated building from a temporary space in October. "I think the kids are happier," she says. "I think having all the lighting does something to you."

Although architects and educators are increasingly thinking about how building design affects learning, persuading community leaders—and taxpayers—that a flashy new building could pay off years from now can be a challenge. Architects say it's a myth that a well-designed school is necessarily more expensive, but the belief can be hard to dislodge. "It's much easier to go with what you're comfortable with, with what you know," says HMFH's Wernick.

However, it may soon become imperative that communities begin to think differently about school design.

David Stephen, the founder of New Vista Designs for Learning, an education consulting firm in Boston, points to the lack of room for group work or individual lessons in traditional classrooms, which may also not be equipped with the technology that a 21st-century curriculum requires. "We could continue to use our





older buildings, but I think they're increasingly a constraint," he says. "Maybe the way it changes is kids are going to demand it."

Stephen, a licensed architect who changed careers in the 1990s to work in education and now advises schools on building and curriculum design, notes that building a new school is a chance for communities to rethink their basic philosophy of education.

"The building should be geared toward evolving with the school," he says. "Designing a building is a once-in-a-lifetime opportunity, and we need to be designing schools for tomorrow, not for today. And certainly not for yesterday." ■



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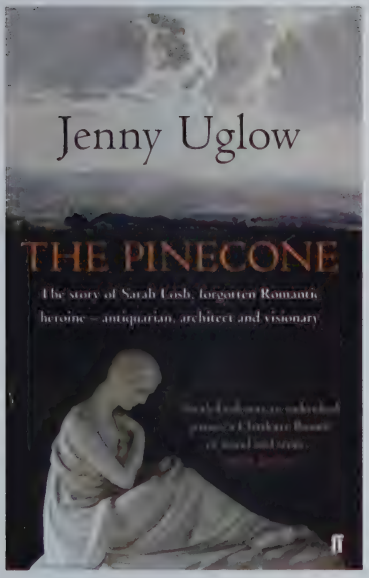
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Books



The Pinecone
Jenny Uglow
Farrar, Strauss, and Giroux, 2013
Reviewed by Deborah Weisgall

Sarah Losh was born in 1785 in the north of England, in a village called Wreay, close to the Scottish border and the Lake District. As a child, her family recognized and encouraged her intelligence; she studied science, mathematics, the classics. She was well-loved, willful, pretty, and inseparable from her sister, Katharine. Neither married; we don't know why. After Katharine's death, in 1835, Sarah became an architect. One of the churches she built is an unsung marvel—a moving combination of intellect, passion, and craft that expresses the tectonic shifts of 19th-century thought.

The Loshes were an old family, rich landowners, attuned to change. They became entrepreneurs who invested in emerging technologies: railroads and the manufacture of alkali. Liberals and abolitionists, they read widely and studied abroad. In 1816, Sarah and Katharine spent several months in Europe looking at art, architecture, and the ruins of ancient civilizations. She burned many of her own papers; what she did save, including an account of her Grand Tour, has disappeared. No children, few words: Like so many extraordinary women, she was almost forgotten.

Jenny Uglow fills in the details of Sarah's life with reports of her family and neighbors, digging through diaries and records like a paleontologist in search of fossils. She constructs a subtle picture of the community negotiating complicated times, but her subject remains elusive. The person who was Sarah Losh seems a fossil whose ghostly impression is caught in hardening sediment. In Uglow's deeply informed discussions of her work, Losh's artistic character and genius come alive.

Uglow points out that, as a woman, Sarah Losh would never have presumed to call herself an architect. And, unfettered by category, Losh proved to be more than that: a philosopher who wrestled with the opposition of science and faith, time past, and eternity to come; a thinker who rendered her ideas in stone. The strongest evidence for her powers of mind and emotion is the little church in Wreay, which has astonished visitors ever since it was consecrated in 1842.

Sarah Losh designed the church, paid for it, and carved some of the decorations herself: alabaster candlesticks in the shape of lotus flowers. Built in what was coming to be called the Lombard, or Romanesque, style, the church seems far more ancient than it is. And at first its decorations appear to be conventional: gargoyles, carved heads, stained glass windows. But the gargoyles are turtles, not fabulous monsters. Two carved heads belong to a man and a woman, ordinary humans with no attributes of sainthood. The colored windows depict flowers, not Bible stories, and a semicircle of windows high in the apse are fitted with thin panels of alabaster, carved with the designs of fossils. A row of angels alternates with palm trees, a reference, perhaps, to the temple of Solomon. Lotus flowers and pinecones are everywhere: symbols of life and regeneration predating Christianity.

Losh understood the implications of the new science of geology, the growing rift between the evidence of paleontology and the doctrines of religion, the vanishing centrality of human life in the history of the planet. The world had already witnessed time without end—what, then, was faith? But she did not abandon it. In this church, with its round arches recalling the origins of the Church and its decorations recalling the origins of the earth, Losh constructed a prayer for reconciliation. Science and religion: Each addresses the mystery of existence, and each can exist only in an edifice of human design.

Deborah Weisgall writes about art and literature for national publications. Her last book was *The World Before Her*, a novel about George Eliot.



Architecture School: Three Centuries of Educating Architects in North America
Joan Ockman, editor
MIT Press, 2012
Reviewed by Amanda Reeser Lawrence

The critic Reyner Banham once remarked that historians of architecture, particularly of contemporary architecture, "distort"

the field that they are observing, just as scientists inevitably impact their results—however slightly—with their instruments. Joan Ockman's book makes no bones about this "observer effect." In her introduction, Ockman qualifies the book's choices and acknowledges that it is decidedly a document "of its time," reflecting the preoccupations and issues of contemporary architectural culture.

Commissioned for the centennial of the Association of Collegiate Schools of Architecture, the 400-plus page book, with 35 contributors, is a rich and varied exploration of architectural education in North America. Somewhat unconventional in format, it is divided into two sections: six chronological essays stretching from the mid-19th century through to the present; and a "thematic lexicon" of key ideas in architectural education, organized alphabetically. Though the two sections don't tie directly together, connections between them allow for some of the more satisfying moments in the book.

The six chronological essays begin with Dell Upton's look at the prehistory of the American education system in architecture leading up to 1860 and end with Stan Allen's consideration of "contemporary" architectural education from 1990 to 2012. Precise chronological divisions of this type of subject matter are necessarily artificial, and the essays deliberately violate their own boundaries, overlapping the dividing years 1860, 1920, 1940, 1968, and 1990. Along the way, however, a portrait of changing pedagogical frameworks appears—notably from the British apprentice system through to the Beaux-Arts and later German Poly-technical models.

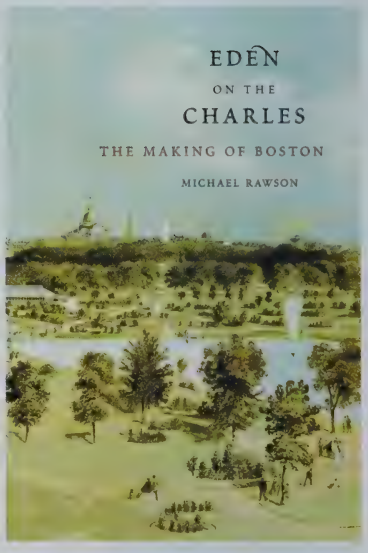
The second half of the book is at once less satisfying but also more fascinating, as the 29 topics, all of which were chosen because they "figured centrally in architectural education's history," beg the question of not only their specific nomenclature (Why "Architecture School Buildings" and not "Buildings"? What does "Disciplinarity" mean, exactly?) but also their extent. The sample set is large enough that things invariably seem to be missing—landscape urbanism, for example, or student-produced publications—and 29 is close enough to 26 that one wonders why there isn't one entry per letter.

The range of authors in this second half produces diversity at the cost of cohesiveness; in contrast, say, to the similarly encyclopedic *Words and Buildings* by Adrian Forty or even the essay introductions in Ockman's influential anthology *Architecture Culture: 1943–68*, which are held together not only by the author's brilliant observations in the former and depth of knowledge in the latter but also by their singular voice.

The authors in the book, Ockman tells us in her introduction, were asked not to privilege any school in particular (presumably their own) but certain institutions—the University of Pennsylvania, MIT, Columbia, Yale—emerge more than others, as do certain figures: Kahn, Le Corbusier, Rowe. The stars of the show, however, are the illustrations, many before never published, which better than words flush out a history of architecture's educational system and its settings: photos of "masters," such as Kahn or Le Corbusier, on juries or lecturing to students; pages from student journals; and many student models and sketches, with techniques ranging from elaborately rendered ink washes from the Beaux-Arts-led institutions to Hejdukian hardlines of Cooper Union in the 1970s.

These images go a long way toward compensating for the biases of the historian that Banham warned against, and of which Ockman is so keenly aware. The strength of this graphic "evidence," along with the breadth of its scholarly research, make this book not only a profile of today's architectural preoccupations but also a lasting resource for future architects and educators.

Amanda Reeser Lawrence is founding co-editor of PRAXIS. Her book *James Stirling: Revisionary Modernist* will be published by Yale University Press in January 2013.



Eden on the Charles: The Making of Boston
Michael Rawson
Harvard University, 2010
Reviewed by Matthew J. Kiefer

Among its other virtues, reading history can cure myopia about the present. So if, for instance, you assume environmental consciousness is a late-20th-century phenomenon, Michael Rawson's *Eden on the Charles* will reveal how it emerged in 19th-century controversies about managing Boston's growth.

Boston began the century a large country town and ended it a burgeoning industrial metropolis. Rawson, an environmental historian, describes several vigorously debated undertakings to address this growth. He's less interested in mapping physical changes than in tracing changing values about how to shape a city. Is nature an obdurate resource pool to be plundered or outwitted, or a sacred and vulnerable common resource requiring public management?

Each debate Rawson recounts reflects this duality: the campaign to convert Boston Common from a pasture to a park aimed to protect public health and prevent the collapse of the Common from overgrazing or the gentry who had newly landed on Beacon Hill and eventually persuaded the City Council that each household's "ancient privilege" of grazing one milk cow for free who had to

make way for the expanding mercantile city.

The campaign to build a municipal water system to replace the overstressed patchwork of private wells and cisterns was led by social reformers, mostly doctors and ministers. They framed abundant clean water as a basic right that would reduce disease, aid firefighting, reduce drunkenness and prostitution, and even quell ethnic and religious unrest.

Well-to-do landowners thought private water companies could provide it more efficiently. This time the mercantile class lost, and soon the newly fenced Common was graced with a fountain fed by municipal water. Both the park and the public water supply were recognized as great civic achievements.

As Boston's growth spread to semirural communities such as Roxbury and Brookline, annexation offered lower-cost police and fire protection, sewers, and roads—but at the expense of local control and a pastoral ideal. Most communities chose annexation, but Brookline resisted, starting a national trend against consolidation.

In a growing port city, land making on an isthmus surrounded by mudflats was irresistible—and unregulated. Shipping interests blamed it (incorrectly, it would turn out) for silting up shipping channels in Boston's superb natural harbor. The ensuing battle to regulate harbor land making pitted land interests (railroads, developers) against water interests (shipping) in much the way waterfront licensing debates do today.

Finally, by the end of the 19th century, concerns about deforestation and loss of New England's Puritan heritage from suburban development provoked urgent calls for a metropolitan park system. Before long, the newly formed Metropolitan Park Commission had acquired the Middlesex Fells and the Blue Hills, and laid out the system of parkways we use today.

Arguments on both sides of these debates proceeded from principle, from pragmatism, and from self-interest, and Rawson follows them closely. Arguments were often advanced opportunistically; self-interest was clothed in moral imperative. More than one reason was often necessary to spur public action. Preventing imminent harm was invariably more compelling than providing distant benefits.

It's oddly comforting to know that fractious present-day debates over infrastructure and development have such a venerable lineage. And, yes, the modern notion of environmental collapse—whether of the Common, the water supply, the port, or the outlying forest—underlies the success of many of these campaigns. Ironically, managing the resource generally accommodated further growth and fashioned the city we still argue endlessly over today.

Moreover, these debates seemed to come out in the right place. Imagine a Boston without public water, metro parks, or limits on land making. This may be the most comforting news of all as we prepare to tackle climate change and other challenges.

Matthew J. Kiefer is a land-use attorney at Goulston & Storrs in Boston. He teaches in the urban planning program at the Harvard Graduate School of Design.



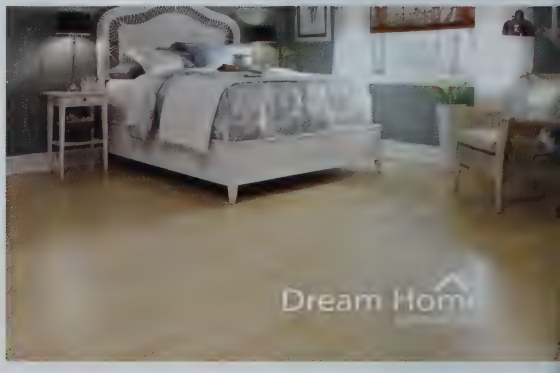
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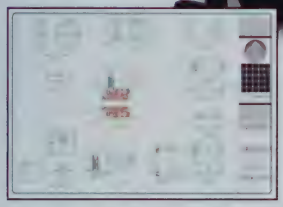




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Site Work

The Boyer Report
www.architectureboston.com/boyer
High schools overflow with '90s grunge music and Doc Martens again, and this comprehensive survey of the relationship between architecture education and practice seems as timely today as when it was released at the AIA convention in 1996.

Wheelwright Prize
www.wheelwrightprize.org
Once reserved for the Harvard-accepted I.M. Pei and Paul Rudolph crowd, the Wheelwright Prize now offers the chance at a lavish travel study grant to others brave enough to apply—a nice complement to the MIT-affiliated, Massachusetts-based Rotch Travelling Scholarship. Applications close February 28!

Digital collaborative
www.architeam.org
Online communities such as ArchiTeam, a social learning offshoot of ArchiPaper, are opening lines of collaborative, self-driven global learning.

What the kids are saying
www.archinect.com/forum
Mutual enlightenment, mentoring, navel-gazing, and hilarity all appear in Archinect's forums.

A survey course
architectural-review.com/reviews/pedagogy
New models of pedagogy abound, and *The Architectural Review* offers an around-the-world tour.

Feast after famine
archrecord.construction.com/news/2012/09/120925-Survey-Predicts-Architecture-Shortage-by-2014.asp
Years wandering in the wilderness are about to pay off, if *Architectural Record*'s economic divining holds true. There may seem to be a surplus today, but by 2014, we're on track for a shortage of architects.

Importing erudition
www.eesa-naab.org
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If slogging through the Intern Development process is a test for the US educated, it can seem positively Herculean for those educated abroad. Convert international expertise into a US registration through Education Evaluation Services for Architects or the Broadly Experienced Architect program. ■







The Last Word, Indeed

Matthew Frederick is an architect, educator, and author of seven books, including *101 Things I Learned in Architecture School* and the forthcoming *101 Things I Learned in Engineering School*.

ABOVE
Professor James Morrett at Fallingwater, 1980. Photo: Matthew Frederick.

"Don't go to architecture school," Jim warned. "It will ruin your mind."

Jim was James Morrett, my first architecture professor. I had enrolled in his community college program in Pennsylvania while deciding whether to attend architecture school. Jim was sure his drafting-oriented program provided all the education I would need. He had not completed architecture school himself; presumably, he dropped out when he sensed ruination was imminent.

Jim's curriculum was surprisingly rigorous, with courses in physics, structural design, and building technology. And as the first architect I had met, he provided a compelling template: smart, good looking, hilariously contrarian, and apt to provide the convincing last word in any debate. During our marathon drafting classes, he turned off our rock music, set the dial on a classical station, and pontificated good-naturedly on conservative politics. At lunchtime he vanished; hours later he'd return, trailed by the scent of cigarettes and Drambuie.

One day, Jim took my classmate Steve and me to one of his marathon lunches. On the return trip, he stopped his Jaguar near the State Capitol in Harrisburg. He pointed to a set of gates he had designed, each an intricately gridded composition in bronze.

"You see that bar near the bottom right?" he asked.

"It's crooked," I said. "Why did you do that?"

"So I could drive by here one day and show you."

• • •

By the time I graduated from Jim's program, its limitations had become evident. Jim taught the how of making buildings, not the deeper, broader why. Steve and I moved to Boston to enroll in architecture school, where we gained insights into the built environment that Jim could not have provided us. But as my interest in architectural theory deepened, professional practice grew boring. Eventually, I became unemployable. Perhaps architecture school *had* ruined me.

At my nadir, Jim called. The president of the community college wanted to start a "real" architecture program. Was I interested in running it?

The opportunity was a gift. I imagined Jim and me working side by side in our respective programs, kibitzing over coffee and sharing Drambuie-punctuated lunches.

An enthusiastic interview landed me the job. But although Jim and I shared an office, I saw him rarely. One morning I spied him in the hall and invited him to visit my design studio. He accepted. I was sure that upon seeing my students' work, Jim would discover within himself an intuitive appreciation for their explorations in figure-ground theory.

Jim was a no-show. For the rest of the term, he avoided me. The next semester, he shifted to a half-time schedule, and I rearranged our office.

"What happened here?" he asked the next morning.

"I renovated," I offered meekly.

"Well, renovate it back."

• • •

Jim retired at the end of the school year and went in search of warmer weather. A few years later, I returned to Boston while my friend Steve moved back to Harrisburg. Steve and I fell out of touch, but in 2010 he called to ask me to be his best man. We rehashed our favorite Jim Morrett stories, and I searched for Jim on the Web. Jim had moved to North Carolina. A second search told me he had died two years earlier. His widow was a former student I had known well.

Steve reported from time to time on his and his fiancée's search for a house. They were becoming disillusioned by the choices in their price range. But, eventually, they stumbled upon a compelling mid-century Modern ranch: gently sited, well-proportioned, airy, simply and honestly executed. It was a house any architect would be proud to live in. A house perfectly suited to the wedding reception it hosted later that year.

Curious as to the house's history, Steve asked he previous owner about a modest renovation she had performed a few years earlier. She sent over the renovation drawings. Under them, Steve found the original construction drawings from 1966. From the title block, the name of the house's creator looked up at him: James Morrett, Architect. ■


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The Pied Piper of Modernism

What Went on at 46 Brattle Street

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american gropius

ABOVE
Walter Gropius at his 80th birthday celebration. From *The Architects Collaborative*, published 1966 by Arthur Niggli, Switzerland.

COVER
From top, clockwise: Louis McMillen, Norman Fletcher, Walter Gropius, Robert McMillan, and Benjamin Thompson. Not pictured: John Harkness. From *The Architects Collaborative*, published 1966 by Arthur Niggli, Switzerland.

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Photo: John Horner Photography

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Adaptive re-use of H.H. Richardson building for Historic Boston, Inc.
Architect CUBE design + research

Beyond the glass curtain

An examination of Walter Gropius—his life and legacy—is a study of modern architecture, of course. But it is also a meditation on fame.

From the Bauhaus in Dessau, Germany, to The Architects Collaborative in Cambridge, Massachusetts, Gropius aimed for anonymity, elevating the concept of teamwork almost to the level of ideology. It was a communal approach more familiar to the cultures of Asia than to Europe or America. Gropius believed in "the common citizenship of all forms of creative work and their logical interdependence upon one another." This, he said, would prove more enduring than any individual achievement.

And yet Gropius is the one remembered as the magnetic "Silver Fox"—dominating the textbooks, celebrated with an annual lecture at Harvard's Graduate School of Design—while many of his colleagues are lost to history or tacked on as acolytes. Fame is a fickle mistress, but she is also given to a smirking irony.

Nearly 44 years after his death, Gropius remains an enigma, provoking fierce debate among scholars and students alike. Was he an architect with a singular vision, or did he lean on others? His design concepts were powerful—the glass curtainwall, the spiral staircase—but could he even draw? Where is his proper place in the pantheon of great architects? As a teacher? A theorist? A marketer? The five essays that introduce this magazine's theme suggest he was all these, and more.

When Gropius joined the faculty at Harvard in 1937, his best pure architecture may have been behind him. The Architects Collaborative he later helped found was at one point the largest design practice in America, and hundreds of his students went on to teach the stark, honest principles of Modernism in schools around the world. Yet by the time Gropius died, in 1969, Ada Louise Huxtable wrote in a tribute that the utopian ideals of Modernism had "moved into absurdity, tragedy, chaos and decay."

The intellectual firepower Gropius brought to bear may be what attracted his followers the most. His ideas were prescient. Today, the benefit of teamwork and collaboration is something every business-degree student learns. The seamless way he moved from the Arts and Crafts movement to machine-age tools and materials eluded many at the time. ("Art and technology—the new unity," he said.) And the efficient, economic house he built in Lincoln, Massachusetts, employed sustainable techniques decades before "sustainability" became a buzzword.

Just look at his thoroughly contemporary prescription for a family house, written in 1931: "It should be of light construction, full of bright daylight and sunshine, alterable, time-saving, economical and useful in the last degree to its occupants…." Gropius, like many in Europe, experienced terrible deprivation in the ruins of World War I. He absorbed the lesson of postscarcity economics and turned it into a compelling style.



PHOTO: Connor MacDonald

Today the Gropius House in Lincoln is Historic New England's most popular property. Visitors come to feel his presence—and place their own interpretations on his life. The truth is, you can't control your own legacy. The culture and the times will impose their own analyses. You can only hope that your life and deeds match your stated ideals.

On the funeral program from July 1969 is this quote from Walter Gropius: "It would be beautiful if all my friends of the present and of the past would get together in a little while for a fiesta à la Bauhaus—drinking, laughing, loving. Then I shall surely join in…."

In that spirit, we offer this issue of *ArchitectureBoston* as a kind of belated party favor.

Special thanks to Julie Michaels, a member of the *ArchitectureBoston* editorial board, for stepping in as visiting editor on this issue. And welcome to Fiona Luis, longtime arts and features editor of *The Boston Globe*, who joined the magazine as deputy editor in April. ■

Renée Loth
Editor

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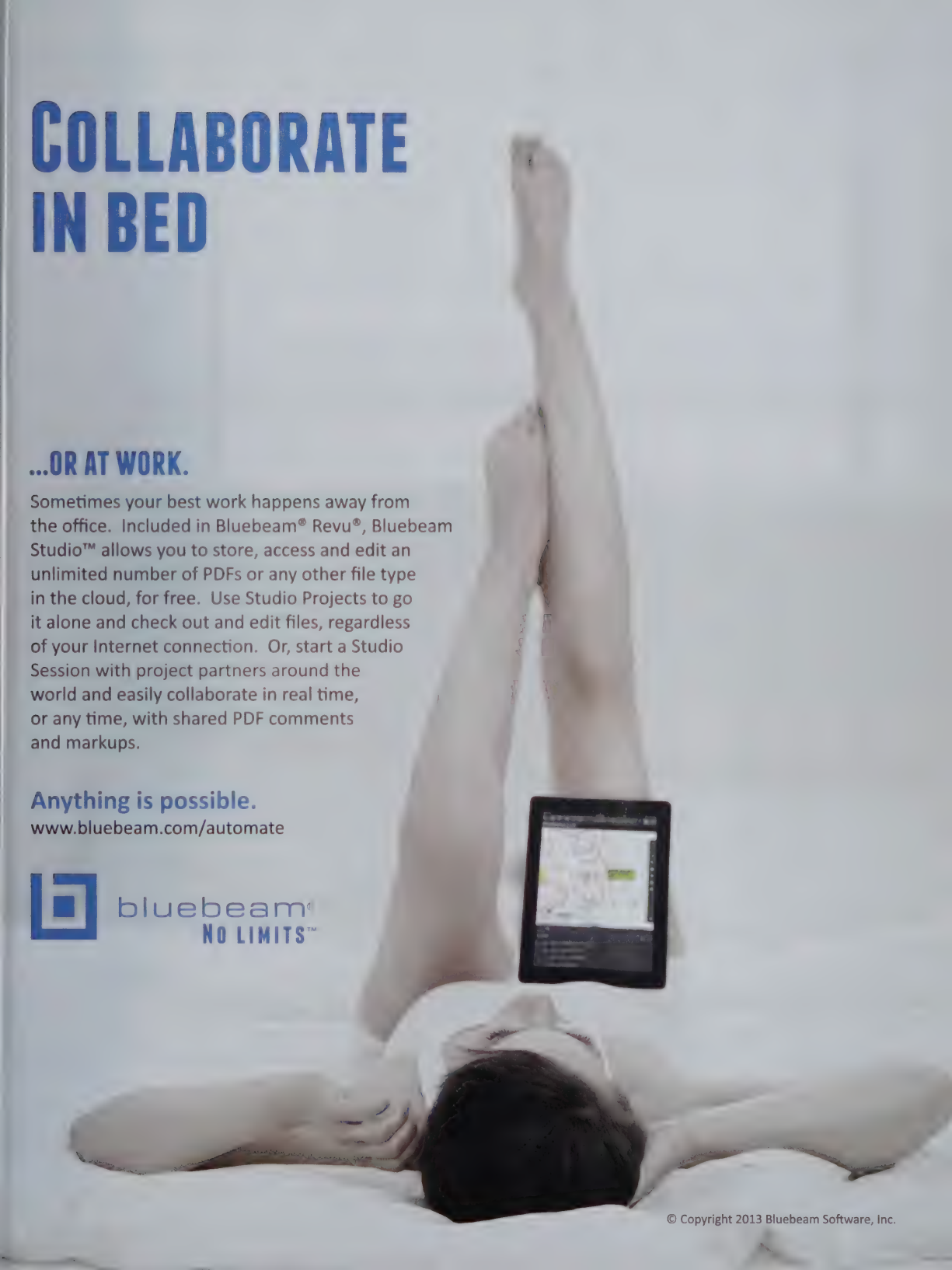
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ASK ABOUT ENERGY STAR

On "School" (Spring 2013)

I agree with Gretchen Schneider, in her article "Design for Dignity," that Farshid Moussavi has an out-of-date view of practicing public-interest design. In fact, we have some data to back this up, based on research conducted as part of the 2011 FAIA Latrobe Research Prize. In a survey of a random sample of 383 national AIA members, 90 percent of respondents thought it was, indeed, possible to create designs of the highest quality while practicing public-interest design. The prevailing belief now is that there is no trade-off between serving communities and doing excellent design.

Closer to home for Moussavi, we also surveyed students at Harvard's Graduate School of Design. Fifty-six percent said that their interest in public-interest design had increased since they entered Harvard; 37 percent attributed this increase in interest to a professor at school; and 54 percent, to a particular class. Perhaps Moussavi needs to revise her attitude if she wants to remain of interest to her students.

Of course, the proof is in the pudding. One need only look at the work of recent GSD graduates such as Michael Murphy and Allan Ricks of MASS Design Group to see what Moussavi has missed.

BRYAN BELL
Design Corps
Raleigh, North Carolina

In "Beaux-Arts and Back Again," David Hacin's and Nader Tehrani's excellent discussion makes clear we've moved beyond the Beaux-Arts/Polytechnique/artistic/technical debate as the sole model for architectural education. With the inclusion of a host of subjects—history, theory, sociology, geography—the platform of education has considerably broadened. Nevertheless, teaching the core skills of visualizing and transforming ideas into physical realities remains the primary goal of an architectural education. Like the clinical rotation in medical school and the moot court in law school, the design studio in architecture school is the most effective means to engage a design problem and move beyond analysis to synthesis.

The studio structure, however, can be far more flexible than it tends to be today, largely defined as a one-semester design project. Studios can be research-based, with design problems used for testing assumptions. Short, one-month interactive workshops on site can teach the values of the client and community. Integrated studios with structural and environmental engineering components can introduce students to the potential of the creative interaction between disciplines.

Stretching the definition of design studio requires more flexibility, more organization, more cooperation, and more inventiveness, but isn't that exactly what is required of us today in practice?

ANDREA P. LEERS FAIA
Leers Weinzapfel Associates
Boston

In his brilliant novel "The Glass Bead Game," Hermann Hesse imagined an elite society devoted to the intellectual pursuit of a beautiful but arcane game. The game has a sophisticated set of rules and values, impenetrable to the uninitiated and requiring years of study in the arts, mathematics, and cultural history. I have often thought Hesse perfectly describes the ethos of formal academic architecture.

As far as I am concerned, this is not a criticism.

Inherent in a number of pieces in the issue is the question of whether architecture schools should be teaching technical skills or formal design. There is Steven Brittan's assertion that "we should reduce the distraction of esoteric theory…" on the one hand, and David Hacin's observation that "…the goal of the US undergraduate system is teaching students how to think" on the other. The two are not mutually exclusive, of course, particularly when coupled with some form of cooperative work/study program; but between the two, learning how to think in formal design terms is best accomplished in an academic setting.

What is sometimes lost in this debate is that architecture and the visual/spatial arts have a logic of their own. Technical skills are, by and large, knowledge based. Knowledge-based reasoning is language based, and Western cultural bias favors language-based reasoning over spatial reasoning. (The word "logic," after all, is derived from "logos," Greek for both "speech" and "reason.") The esoteric design exercises and debates of the academic architecture studio are meant to develop an intuitive sensitivity to this other, less-recognized form of logic. The technical stuff can come later and, in any case, is probably more current and applicable when learned in a practice setting.

The problem, of course, occurs when the academic ethos of the studio is transplanted wholesale into the real world, which, justifiably, regards it as irrelevant. This is a syndrome of both the celebrity architect who is applauded for it and the recent architecture graduate who is not. But that is not a reason to abandon a process that develops the kind of logic essential to formal design skills.

MICHAEL LIU AIA
The Architectural Team
Chelsea, Massachusetts

The lead image in the article "Beaux-Arts and Back Again" intrigued me. The image appears upside down and cannot be perceived as we might experience the space without losing balance. Book spines are falling off shelves that do not support them, and the form of the steps, although beautiful, lead to a door on the ceiling. Was this a deliberate attempt to encourage architects to turn our perceptions upside

down in our search for meaning in education, where sometimes, in the rush to embrace new technologies and building science, traditional methods and skills are left behind?

The firm that provided the image is called "Levitate." They ask us to look up, into the future, as opposed to down, into the past. I believe that an architect's education can find a balance between new ideas and those that build on the history, work, and understanding that came before.

Gravity is still a force with which to be reckoned. Am I reading more into a simple graphic reversal? For a moment, I had an image of Mary Poppins' tea party in my head.

PAUL HAJIAN
Massachusetts College of Art and Design
Boston

I was struck that in an issue about "schools" of architecture, there was nary a word about the design of those very schools. If a core belief of architects is that the shape of settings for human activity can help shape those activities, then certainly the design of schools of architecture should serve to promote the kind of interactions that might lead, eventually, to good design beyond the walls of the university.

The answer to this question—what is the appropriate design for an architecture school—might be simple, if we all agreed on what kind of education we were hoping to provide. But we don't. Among the many opinions in the magazine, two stood out for me. One was the belief, most eloquently articulated by William Rawn, that architecture schools should develop liberally educated students and nurture their knowledge of society as much as their knowledge of technology. Another view, argued by Gretchen Schneider, is that architecture schools should instill in their students the desire and skills to work toward improving the conditions of those who inhabit houses, schools, and public places that are detrimental to their "pursuit of happiness."

Following Rawn, we might want an architecture school more completely integrated into the heart of the campus, perhaps not set off in its own building, so that students are comfortable as humanists and social scientists as much as artists and engineers. Following Schneider, we might blow apart the whole notion of architectural education being campus based. Instead, why not move architecture schools into communities of greatest need?

Of course, I think we should want both. So perhaps a future issue could look at how we should build new and redesigned schools to fulfill these two—and perhaps more—missions for architecture in the 21st century.

MAX PAGE
University of Massachusetts/Amherst
Amherst, Massachusetts

As a person who believes that education is the single most promising hope for life on our planet in this era of the anthropocene, I co-chair a committee that in April 2011 persuaded the BSA board to vote for the following "Aspirational Curriculum Recommendation for Environmental Education in Architecture Schools":

Schools that train professionals involved in the building sector of the economy should develop their own curricula that provide graduates with the theoretical and practical competence to consistently design high quality low-carbon or alternative energy built environments. Graduates shall be well trained in the process of creating energy performance-based and other evidence-based design that balances ecological, economic, and social sustainability.

No mention of this found its way into the recent School issue. But what is more disturbing by far is that climate change and sustainable urbanization were mentioned only once in the entire issue—by Steve Brittan—and sustainability only once, in passing. And while I hope to remain friends with many of the authors whose work I respect, I must chastise them for demonstrating so clearly that climate-change awareness is not even on their personal radar screens as they speak about the state of our schools or our professional practice. Worse, an editor and editorial board that purports to raise the level of awareness on topics of importance to our

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profession also appear to be unaware of the elephant in the room.

PETER PAPESCH AIA
Co-chair, BSA Sustainability Education Committee
Boston

The purpose, pedagogy, teaching techniques, and values of architectural education are, indeed, changing. I found it valuable that your contributors rooted their discussions within the broader context of the profession: What kinds of changes are the practitioners asking from the academics to better prepare students for the changing nature of the profession? But I think it's interesting and necessary to ask the same question from a different point of view: What practices within academia are able to drive the profession's adaptability and leadership within the ever-changing demands of our environment? I am interested in strengthening the synergy between our area schools and professional practice.

One of the greatest challenges for contemporary practice is staying current with developing trends and approaches to our work, whether it be technology systems, developments in material and construction techniques, sustainability, or issues involving social and economic planning. Most firms have identified the need to be better connected to research that might enhance our work, yet few have the time or financial resources to do this on our own.

The School of Architecture at the University of Minnesota has developed a Research Practices Consortium where students can participate in research projects that expand the way we approach our work as practitioners. I propose that we try this model in Boston. The first step is to connect relevant research from participating local schools of architecture with practitioners through a portal on the BSA website. Following that, our committee aims to launch a new research-based internship program, which aspires to bring this body of research directly to local firms. Students will have an opportunity to be sponsored as "research interns" and given the means to build on their academic work while learning how to tailor their interests to the needs of the practice and its clients. We see great potential in expanding the modes through which ideas are shared between academics and professionals.

ROBERT J. MIKLOS FAIA
designLAB architects
BSA Commissioner of Education and Research
Boston

Correction: An article about public-interest design in the School issue of *ArchitectureBoston* misstated the name of the actor who plays Howard Roark in the film version of *Atlas Shrugged*. It is Gary Cooper, not Gregory Peck.

We want to hear from you. Letters may be sent to letters@architectureboston.com or mailed to *ArchitectureBoston*, 290 Congress Street, Suite 200, Boston, MA 02110. Letters may be edited for clarity and length, and must include your name, address, and daytime telephone number. Length should not exceed 300 words.

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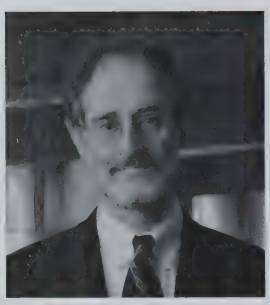


PHOTO Courtesy EYP

David **Fixler** FAIA

("The Pied Piper of Modernism," page 30)

David Fixler FAIA is a historic preservation expert at EYP Architecture and Engineering in Boston. An internationally recognized expert on midcentury Modern buildings, he is cofounder and president of the New England chapter of Docomomo (Documentation and conservation of buildings, sites and neighborhoods of the Modern Movement) and co-editor of *Aalto and America* (Yale University Press, 2012).



PHOTO Sara Saragoça Soares

Michael **Kubo**

("The Cambridge School," page 34)

Michael Kubo is codirector of pinkcomma gallery in Boston. A PhD candidate in History, Theory, and Criticism of Architecture at MIT, his work focuses on The Architects Collaborative and the environment in which corporate architectural practice took shape after World War II. He has taught at Pratt Institute, the University of Texas at Austin, and SUNY Buffalo.



PHOTO Alan Humphreys

Matthew **Bronski** PE
Brent **Gabby** PE

("WWGD?," page 46)

Matthew Bronski PE (left) is an engineer and associate principal at Simpson Gumpertz & Heger in Waltham, Massachusetts. His projects include the restoration or assessment of Modernist icons designed by Philip Johnson, Paul Rudolph, Eero Saarinen, Josep Luís Sert, Frank Lloyd Wright, and others. In 2009 he received the National Endowment for the Arts Rome Prize in Historic Preservation and Conservation.

Brent Gabby PE (right) is an engineer and senior principal at Simpson Gumpertz & Heger. He led the firm's work on the assessment and exterior restoration design for the Gropius House in Lincoln, Massachusetts, and has designed repairs for historic landmarks such as the Wadsworth Atheneum in Hartford, Connecticut, and the John Adams Courthouse in Boston. He lives in a midcentury Modernist house designed by Walter Pierce.

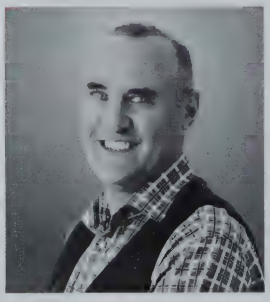


PHOTO Sonya Highfield

Eric **Roth**

(Gallery, page 38)

Eric Roth has been photographing the architecture and interior-design scene in and around Boston for more than 35 years. His work has appeared in publications including *Architectural Digest* and *Dwell*, and he also works with architects, designers, and advertising clients.

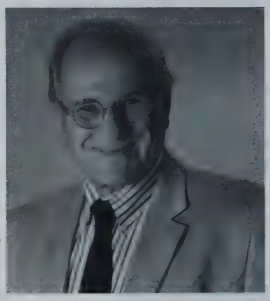


PHOTO Sally Andersen Bruce

Gordon **Bruce**

("A Total Theory of Design," page 50)

For 40 years, **Gordon Bruce** has worked as a design consultant for multinational corporations and as an educator, author, and design jury member. His book *Eliot Noyes: A Pioneer of Design and Architecture in the Age of American Modernism* was published by Phaidon Press, London, in 2007.

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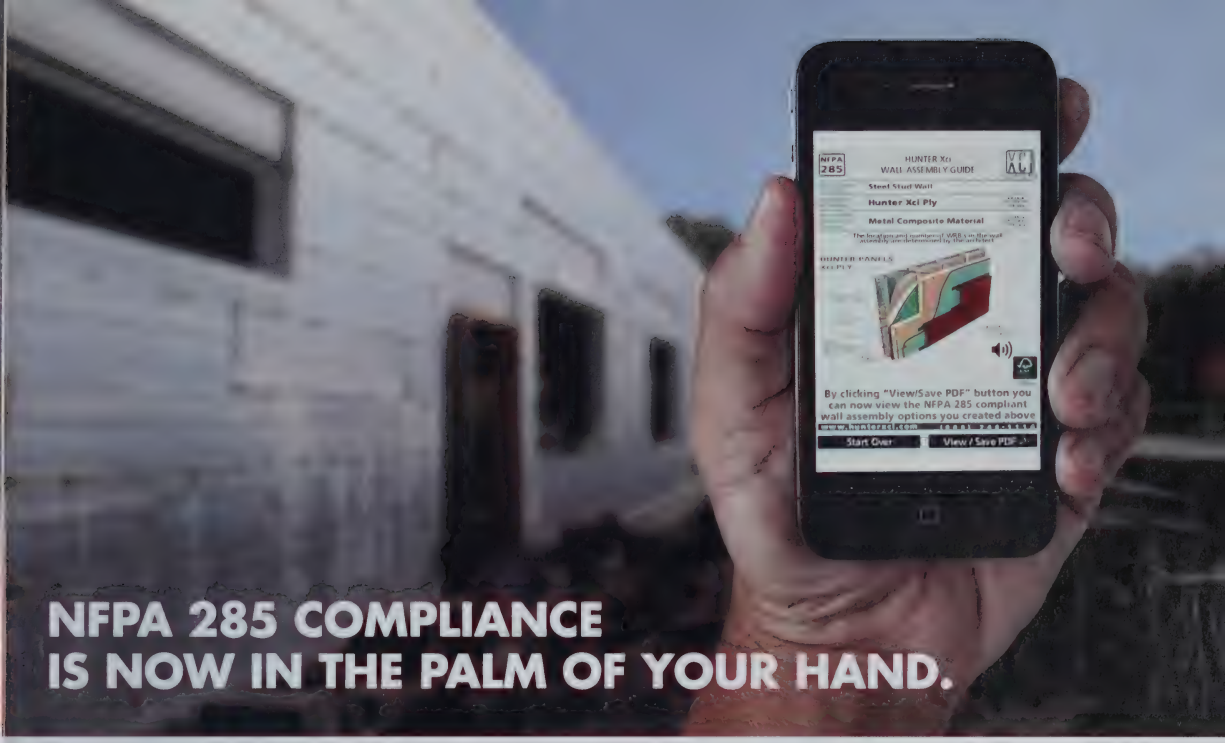
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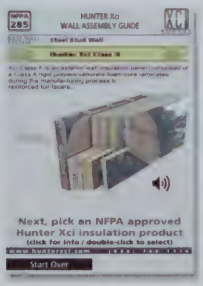
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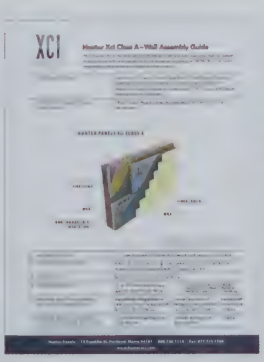
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Unstructured

Lara Kristin Herndon is a New York City–based freelance writer who frequently covers architecture and design.

Henri Labrouste: Structure Brought to Light

Museum of Modern Art
New York City
Through June 24, 2013



RIGHT
Henri Labrouste. Imaginary reconstruction of an ancient city (graphite, pen, ink, and watercolor on paper; Académie d'Architecture, Paris). Courtesy MoMA.

Does the work of Henri Labrouste, best known for the Bibliothèque Nationale and the Bibliothèque Ste.-Geneviève—two of the most breathtaking public spaces in Paris—merit particular reexamination at this moment? This thorough and thoughtful exhibition makes a solid argument that it does.

Architecture shows can be dull—limited to sketches; models; and the occasional, slightly desperate inclusion of some object of resonance: eyeglasses, a pencil case. *Henri Labrouste: Structure Brought to Light* avoids that trap, in part because of its well-supported thesis. The challenges architects face today—incorporating new materials and technologies into an aesthetic plan, redefining public spaces, political turmoil—would feel familiar to Labrouste, who survived six regime changes in France and was an early adopter of steel construction and gas lighting.

Another reason the show succeeds is the number, quality, and variety of the items on display and the thoughtfulness of their presentation. From his achingly precise watercolor studies during five years in Rome to designs and models by Labrouste's students and others influenced by his work late in his life and after his death, the show is exhaustively complete—yet so well organized that its thesis seems inarguable by the final gallery.

Renée Loth is editor of *ArchitectureBoston* and a frequent flier.

Getting There: Design for Travel in the Modern Age

Logan International Airport
Terminal E, Boston
Through November 2013

BELOW
Prototype for the Boeing Stratocruiser, one of the first commercial airplanes, which had its maiden flight on July 8, 1947. Courtesy Teague.

MORE ONLINE
designmuseumboston.org/exhibits/gettingthere

If ever a place could benefit from more thoughtful design, it's the American airport. Generic, vast, and disorienting, most airports make us feel, in the words of travel writer Pico Iyer, like "citizens of nowhere." But have a look at *Getting There*, a free exhibit by the Design Museum of Boston at Logan's international terminal. You'll see that design is both the problem and the solution to airport alienation.

The exhibit recalls the days when air travel was an elegant escape, all Samsonite luggage and gloved stewardesses. We see Pan Am's cabins in their "serene, neutral palette." Air France's cutlery was by the industrial designer Raymond Loewy. A charming 1958 film by Charles and Ray Eames describes Eero Saarinen's people mover, designed to avoid cattle calls at the boarding gate.



Then airline deregulation in 1978 democratized air travel, making it a cheaper experience in every way. And again, design responded. Suitcases now have wheels for long hauls between terminals. Noise-reducing headsets are used to block out hostile environments.

Happily, some firms are trying to respond to new economic imperatives and still produce a humane experience. Air New Zealand hired IDEO to retrofit its seating plans so that extroverts can socialize on flights and introverts can be left in peace.

GENIUS LOCI

Citizen of the Stacks

One of the conditions of early childhood is that you must ask for nearly everything that you want. Some objects are out of reach—the ice pops in the freezer—and permission is a constant requirement. Can I play outside? Can I watch TV? Can I have a glass of water?

And there was always the risk of No, and the disappointment, frustration, shame, and longing that accompanied rejection.

The one place I didn't have to ask for permission was in the children's wing at the Ames Free Library. I earned the right to a library card in the first grade by proving I could form the letters to my first and last name on the application. The librarian led me to the picture-book corner where the shelves were my height. There on the red leather bench under the picture window, I found my answers to questions about life and eased my loneliness. I had many questions as a child and not enough people available to answer them.

I was lonely for all the usual reasons that children are lonely and because I had recently lost the company of my extended family. When my family immigrated to the US from the Philippines, we left our family compound where we lived among dozens of cousins, aunts, and uncles inside a walled perimeter on the same plot of land. I had lost a country, too.

In America, we inhabited various roach-infested apartments in Chicago and Boston. By the time we landed in a house in North Easton, Massachusetts, when I was seven, I had lived in as many different places as years I'd been alive. The buildings in town looked like castles. I found out later that five were designed by the same architect, H.H. Richardson. One of these buildings, the Ames Free Library, was commissioned in 1877, a few years after Richardson designed Trinity Church in Boston.

The library was a gift from the Ames family, who made their fortune manufacturing shovels, and I accepted this gift every week. As my mother waited parked out front, I climbed the long walkway to the library's entrance, a low arch trimmed in Longmeadow sandstone, the wooden doors hidden to the left of the entrance on the porch. Later, I learned about the Chinese men who dug the railroad using those Ames shovels. But as a child, all I cared about was getting my books.

I pushed through the dark doors into the library. It was as quiet as a church and just as mysterious. The one toilet in the cellar required a skeleton key and a walk down a narrow spiral staircase, where you were met with the ghostly marble bust of the library's benefactor, Oliver Ames II. Only library staff was allowed to fetch the books from the balcony under the barrel-vaulted ceiling.

My library card was a house key to my true home. Well before I was actually an adult, I was allowed to cross the border into the adult section. When I searched the wooden card catalog, I would always go to the drawer with 959.9 of the Dewey Decimal System and read the name of the place I had come from, which no one had ever heard of.

The summer before I entered college, I worked as a clerk in the library and sat at the glass-topped desk dreaming of who I would become. All that time, I had never thought about all the people who had written the books on the library shelves. The adults I knew were doctors, nurses, teachers, and housewives. And yet, almost a quarter century later, I became a writer. I found stories in that Richardson building early in my life and never stopped looking for more.

Grace Talusan is a writer and teacher. Her writing has appeared in *Boston Magazine*, *Tufts Magazine*, *Creative Nonfiction*, and other publications.

BELOW
Interior view of H.H. Richardson's Ames Memorial Library from the second-floor stacks. Courtesy CC-BY S.A Daderot.



SEEN

Kumbh Mela
Allahabad, India



Felipe Vera is a Fulbright Scholar, student at Harvard University's Graduate School of Design, and contributor to Harvard's multidisciplinary research project, Mapping the Mela.

RIGHT
Night view of a pop-up street built from iron plates for the Kumbh Mela. Photo: Felipe Vera, GSD Urban India Project

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The biggest public gathering in the world, the Kumbh Mela deploys its own roads, pontoon bridges, cotton tents serving as residences and venues for spiritual meetings, and social infrastructure such as hospitals and vaccination clinics—all replicating the functions of an actual city. The pop-up settlement, which arises for a Hindu religious festival held every 12 years, seamlessly serves 3 million people who gather for 55 days and an additional flux of 10 to 20 million people who come for 24-hour cycles on the six main bathing dates.

This extreme temporal landscape starts a fruitful dialogue about other ephemeral settlements, such as refugee camps, military settlements, and mining camps. From the Kumbh, we can learn about planning and design, reflecting on flow management and infrastructural deployment, but also about cultural identity and elasticity in an urban condition.

Issues of social inclusion, diversity, and even democracy emerge under the framework of a neutralizing grid of roads. This subdivision of the city forms clusters of freedom and facilitates space for individual and group expression. You come away questioning permanence and stability as default conditions for the production of a flourishing urban environment.

JoAnn Greco writes regularly on the built environment for PlanPhilly.com, TheAtlanticCities.com, AIA Philadelphia's *Context*, and *Planning*.

RIGHT
These birdhouses made from trash took flight in Philadelphia and now hang from telephone wires. Photo: Lindsay Lazarski



Toss by Crookedworks

Next City's Storefront for Innovation, Philadelphia
February 2, 2013–April 5, 2013

Inspired by the urban tradition of tossing worn sneakers onto overhead cables, architects Carey Clouse and Zach Lamb (known as Crookedworks) have turned to birdhouses as a form of expression.

Loosely assembled from urban detritus—wires, fabric ribbons, disposable coffee cup lids, bicycle tubing, and lots of plastic bags—the amorphous forms more accurately resembled the nests that our feathered friends build for themselves than the "houses" we craft for them.

The installation attempted to comment on notions of trash and waste and nature's presence in the city. But what the constructions most obviously achieved was a sense of imagination combined with an amused response to our natural and built surroundings. About half came from the New Orleans–based team themselves, the rest from a workshop they led for a mix of Philly hipsters and neighbors with kids.

Ultimately, the birdhouses will be tossed over telephone wires, just like the sneakers that served as inspiration for the project. The architects say the idea is to see if birds use them as habitats—and if city authorities ever remove them.













Covering the Issues

Free to all... Architectural critic Sarah Williams Goldhagen argues that a "revolution" is taking place at your community library in ***The New Republic*** (March 11, 2013). These spaces are unique in the city today: free places where anyone can work, take classes, play, hang out, or even read. No matter the fate of the printed book, the community library is busier than ever. Good library design is tricky: It must accommodate varied media, spaces, and users, while being both distinctive from and sympathetic to neighborhood context. Goldhagen discusses new examples from Seattle to China to Norway and suggests that this promising collection pulls it off.

Past is prologue?... Directly across the Mediterranean Sea from Italy and Greece sits Libya, so it stands to reason that some of the world's best ancient Greek and Roman architectural ruins are found there as well. Libya was once an integral piece of the Roman Empire, but the Qaddafi regime deemed that history too Western and ignored it; thankfully, the structures were not destroyed. In "New Old Libya," a ***National Geographic*** cover story (February 2013), George Steinmetz's photographs showcase the spectacular amphitheaters, arches, and temples that are now being preserved and restored. Author Robert Draper argues that, as evidence of an internationally connected past, these glorious ruins should prompt Libya to reach outward again.

One step at a time... The late Joseph Mitchell was born in North Carolina but, block by block, made New York City his home. He walked them all. ***The New Yorker***—where Mitchell was a staff writer for 58 years—has published the first chapter of his unfinished memoir (February 11 & 18, 2013). "Street Life" is a love letter to the urban environment and the magic of aimless wandering. In so doing, he reminds us to look around.

Well built vs. design that fits all... "We shape our buildings; thereafter they shape us," Winston Churchill said, and several new initiatives seem to take him at his word. In ***Athletic Business*** magazine's cover story on "active design" (February 2013), Andrew Cohen outlines the basic idea: Design buildings and landscapes that prompt people to get up, move around, and interact using elements such as stairs that are more prominent than elevators. Begun by the New York City AIA chapter, "active design" proponents now seek a broader following. "WELL" design, on the other hand, seeks exclusivity. Entrepreneur Morad Fareed's prototype, a $39 million "wellness loft" (also in New York City), is grounded on the premise that buildings can help us be healthy and that those with means will pay for it. Lynsey Santimays describes "The Business of Living Well" in ***Worth*** magazine (December–January 2013). Fareed also aspires to create a "WELL Building Standard" that does for building and health what LEED does for buildings and the environment. But there's a catch: To adopt the WELL standard, one must hire his company. So everyone should be active, but one must be rich to be well?

You go, girls... "Massachusetts ranks 37th in the nation when it comes to wage equity," according to a recent study by the American Association of University Women. Janelle Nanos uses this statistic as her point of departure in "Mind the Gap" in ***Boston Magazine*** (February 2013). Massachusetts women make 77 cents for every dollar paid to their male peers. The greatest disparity is in highly educated positions, as that's where there's the greatest regulatory flexibility. This may help explain why architecture is still such a man's game; according to ***Architect*** magazine (September 2012), "only 16 percent of the AIA's membership is female." How does your payroll (or paycheck) look?

Gretchen Schneider AIA is the executive director of the Community Design Resource Center of Boston.

Massachusetts Urban Farming Conference

Roxbury Community College
March 9, 2013

"When we talk about the future of economic development in Massachusetts, we're talking about you," state economic development secretary Greg Bialecki told the audience at the first Massachusetts Urban Farming Conference. Bialecki is among many state and city officials who see a robust future for urban agriculture, with the potential to transform cities and towns by creating jobs in urban neighborhoods, reclaiming vacant land, and increasing citizens' access to fresh and nutritious produce.

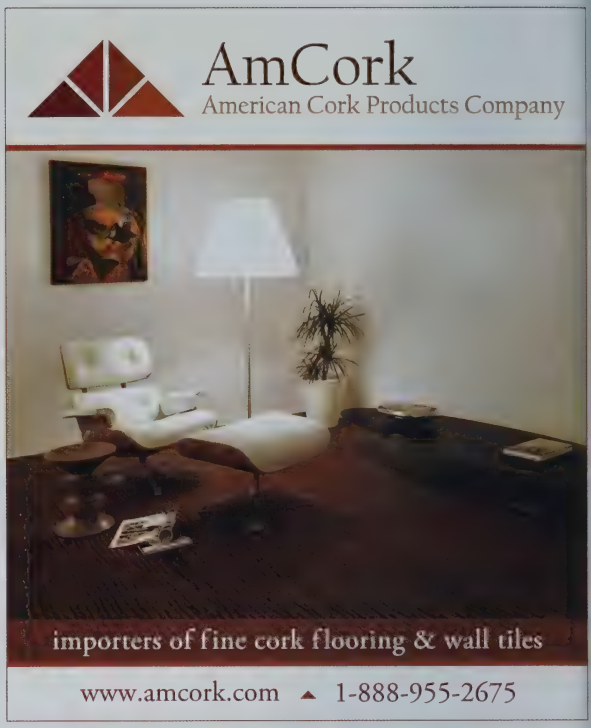
To this end, the City of Boston has been working with the Boston Redevelopment Authority (BRA) to rethink the zoning parameters around urban agriculture and enable the sector to grow. Since 2010, the BRA has been developing a set of zoning rules that will open the doors for more farm production in the city, says BRA planner and project leader Tad Read.

The proposed plans, which will be vetted throughout the city's neighborhoods this spring and brought to the BRA board for approval in the late summer or fall, will allow for rooftop farming and for public and private land to be converted into farms, says Read. Concerns about how farms are sited with respect to their neighbors will require those that are more than 10,000 square feet to undergo a design review, a process that could draw architects and designers into collaboration with farm entrepreneurs.

Being able to reap the rewards of this new sector also will require collaboration among entrepreneurs, residents, and city officials. But if the new zoning is approved later this year, the potential of urban farming would make all the hard work of sprouting a new industry here well worth it.

Imagine taking an elevator to a downtown rooftop farm and picking sweet melons from a field that overlooks the Boston skyline. Or popping into the corner bodega for a carton of eggs fresh from city chickens. When a city's vacant lots and rooftops are converted for farm enterprises, they can provide fresh food, reduce runoff, and make urban landscapes more beautiful. But city farms also have the opportunity to engage residents with food and agriculture in a very immediate way—as neighbors.

Leigh Belanger is a Boston-based writer with an interest in community food systems. Her book, *The Boston Homegrown Cookbook*, was published in 2012





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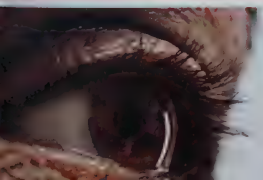
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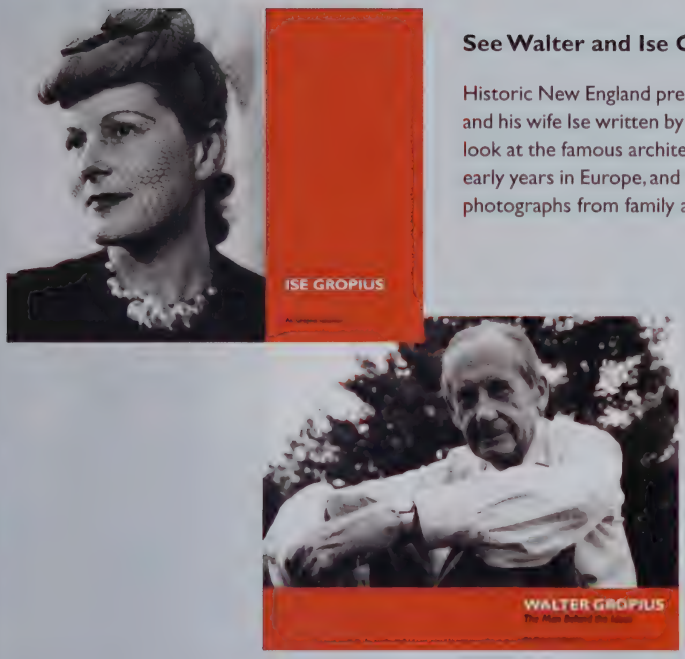
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a man of Parts
Walter Gropius in Five Acts



Loescher & Petsch, Harvard Art Museums/Busch Reisinger Museum

MAY 18, 1883

Walter Adolph Georg Gropius born in Berlin; his father and great-uncle were architects.

1903–07

Studies architecture at technical universities in Munich and Berlin.

1908

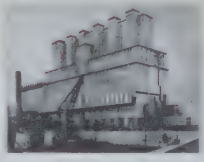
Joins the firm of Peter Behrens, where he meets Ludwig Mies van der Rohe and Le Corbusier.

1910

Together with Adolf Meyer, opens a practice in Berlin.

1913

Publishes a seminal study, "The Development of Industrial Buildings," which includes photos of North American factories and grain elevators.



Harvard Art Museums/ Busch-Reisinger Museum

Founder by Jane Thompson ASSOC. AIA

In 1919, war-wounded and still in his German cavalry officer's uniform, 36-year-old Walter Gropius was asked to revive Weimar's failing State Academy of Handcrafts. The son and great-nephew of architects, Gropius had already served an apprenticeship with the firm of Peter Behrens, where his fellow employees included Ludwig Mies van der Rohe and Le Corbusier. In 1910, partnering with another Behrens employee, Adolf Meyer, Gropius designed one of the pioneering buildings of the new Modernism: the Fagus Shoe Factory in Alfeld, admired for its remarkable weightlessness and transparency.

Now, seeing Germany in ruins and roiled by political chaos, Gropius saw an opportunity to reinvent the culture of 20th-century design from scratch. He would replace formalism and classicism by turning back to First Principles—to the basic potential of process and materials to reveal fresh aesthetic invention. Gropius' goal was to create "a new guild of craftsmen" who would meld art and craft by using industrial technologies that could deliver design to the masses.

At the Bauhaus ("School of Building"), many students arrived with traditional biases and little visual experience. To "reeducate" them, Gropius invented a six-month *Vorkurs*, or Basic Design course, to cleanse beginners' perceptions. In unique exercises, students test-shaped many materials—paper, wire, sheet metal, glass—acquiring an instinctive understanding of the formative possibilities of conventional and modern palettes.

Students would then select a workshop apprenticeship in a particular field, advancing to the level of Master in the German Guild tradition. Each student worked with two masters—a trained technician and a practicing artist, collaborating on design solutions that unified form, use, and technique, while avoiding "art for art's sake" ideas. After three years of collaboration, the journeyman was Guild certified as a Master—qualifying him for graduate study in the Architecture Studio of the Bauhaus.

Gropius' vision was multidisciplinary; he believed in an all-embracing modern architectonic approach, seeing the unity of art in all manmade product—visual, applied, constructed—with the goal of providing "art in the everyday life" of all people.

With the rise of Hitler, Gropius left Germany, first for England and then the United States, where in 1937—already recognized as a founder of Modernism—he was hired by Dean Joseph Hudnut to head the architecture program at Harvard's Graduate School of Design. Gropius envisioned "Basic Design," his famed Bauhaus course, as a key component in the school's move to Modernism. But for 12 years, Hudnut, who disagreed with its hands-on premise, barred it from the curriculum. Gropius was briefly permitted to teach a similar "Design Fundamentals" course for two years, beginning in 1950, which proved tremendously popular with students. But Hudnut cut funding for that class, finding that it drew many students away from his own introductory planning courses.

Here's the irony: Basic Design, a foundation of American Modernist education, has been taught at design schools around this country, often by Bauhaus graduates, but not at Harvard. The school that imported its originator, a world expert, an inventor of Modernism, then curtailed his right to teach what he knew best. But it hardly mattered. By the time Gropius appeared in Cambridge, his philosophy of design had already preceded him. The theories of Walter Gropius and his Bauhaus acolytes would resonate through American modern architecture for a generation to come. ■

Jane Thompson ASSOC. AIA, principal of Thompson Design Group, worked with Walter Gropius over eight years in the 1960s, recording his design convictions and insights on the Bauhaus' role in launching the Modern Movement.

OPPOSITE
Walter Gropius, circa 1928, Berlin. Photo: Emil Bieber. Courtesy Bauhaus-Archiv Berlin.



Parteia Tang

Serves as a cavalry officer in the German army during WWI. His love of riding will remain; years later he keeps a trotter named Colvin stabled in Concord, Massachusetts.



Yvonne Terschert

1913–14

Earns a commission to design the Fagus Shoe Factory in Alfeld; also designs a model factory building for the Werkbund Exhibition in Cologne. Both make early use of the glass curtainwall.

1914–18

1915

Marries Alma Mahler, widow of the composer Gustav Mahler; she leaves him for poet Franz Werfel. They divorce in 1920.



Getty Images

1919

Named as master of the Grand-Ducal Saxon School of Arts and Crafts in Weimar, which he transforms into the Bauhaus. Faculty includes Marcel Breuer, Paul Klee, Josef Albers, László Moholy-Nagy, and Wassily Kandinsky.

Teacher

by Anthony Alofsin AIA

Anthony Alofsin AIA is author of *The Struggle for Modernism: Architecture, Landscape Architecture, and City Planning at Harvard* (W.W. Norton, 2002). He is a professor of architecture at the University of Texas, Austin.

Little did Harvard know the depths of Walter Gropius' difficulties during his temporary exile in England in the mid-1930s. Desperate to regenerate his architectural practice and uncertain of his status in Germany, Gropius found in Harvard's 1936 invitation to chair the department of architecture a lifeline that allowed his career to flourish in America. The invitation came from Joseph Hudnut, dean and founder of Harvard's new Graduate School of Design, and Harvard's president, James Bryant Conant. Both saw in Gropius' former directorship at the Bauhaus someone with the potential to lead their radical new educational agenda in collaborative design. Gropius would attempt to fulfill their expectations by adapting the concepts of functionalism, Bauhaus pedagogy, and the social agenda of the Modern Movement to the American scene.

Gropius taught his first masters' class in spring 1937, and in giving as his first problem a design for public housing around Fresh Pond in Cambridge, he confirmed the social agenda at the core of the Modern Movement. The war years saw enrollments plummet, but when the students returned in 1945 Gropius pushed forward with the key component of his training: a basic design course analogous to the one taught in the early days of the Bauhaus. The course intended to teach a visual language with a focus on function, space, scale, light, form, and structural studies. It was a vocabulary so important to Gropius that he hoped it would be applied to all levels of American education, from kindergarten onward.

Despite his initial enthusiasm, Hudnut increasingly disagreed with Gropius' pedagogical vision. In the dean's view, modern design training required collaboration among architecture, landscape architecture, and city planning, a triumvirate with roots in the predecessor schools of the GSD. In Gropius' vision, collaboration occurred between architects and engineers, which he codified as teamwork; he neither appreciated nor understood the value of city planning and landscape architecture in America.

Furthermore, Hudnut believed that a knowledge of architectural history was paramount in training design professionals, but, crucially, that it should be taught in undergraduate programs before students encountered the rigors of graduate training. Gropius saw studying architectural history as an impediment to creativity and experimentation. If students took architectural history courses, they should take them much later, after the formal language of Modernism had been fully inculcated. Finally, Hudnut, a fierce proponent of American Modernism in the 1930s, saw in Gropius' architecture and his teaching in the 1940s a reductive functionalism that took the humanistic spirit out of architecture. The inevitable result was a bitter split between two individuals who initially had shared a grand dream.

Charismatic and highly articulate, Gropius excelled more as an insightful design critic and ideologue than as a designer. Inspiring many students, he succeeded in propagating his call for teamwork in which the architect would lead engineers, manufacturers, and contractors. His devoted followers reinforced his canonical views as practitioners and teachers, and spread the Harvard method to many other schools. But the role of architectural history as a prerequisite for advanced study was usually forgotten.

Although Gropius resigned from teaching in 1952, he cast a long shadow at Harvard. Even an adept commentator like the critic Ada Louise Huxtable thought he had been dean of the GSD. And while Gropius' fame flourished up to the arrival of Postmodernism, Joseph Hudnut, the first dean of the GSD and the person who had coined the term Postmodern in 1945, disappeared into oblivion. ■



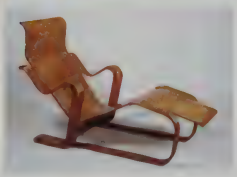
Bauhaus-Archiv Berlin

1923

Marries Ise Frank, who becomes an active member of the Bauhaus. They adopt a daughter, Beate, also known as Ati.

1934

Leaves Nazi Germany for England; joins Isokon group, designers of furniture as well as housing. Brings on Marcel Breuer, who designs some of his most famous pieces, including the Long Chair.



Harvard Art Museums/ Busch-Reisinger Museum

1937

Joins Harvard as a professor, then becomes chairman of the architecture department. Resigns from teaching in 1952, retires from Harvard in 1953.

1938

With land donated by philanthropist Helen Storrow, designs a house for his family in Lincoln, Massachusetts. Breuer builds a house next door.

Social Theorist

by Robert Campbell FAIA

Walter Gropius wasn't a preacher or a didact. It can be tough to pin him down to a set of values because of his distaste for absolutes and simple answers. But underlying much of his career are a few core beliefs. They're social and ethical beliefs, not mantras about architectural form.

Like many in his generation, Gropius emerged from the havoc of the First World War believing that the old world of princes and empires had crashed and that a new world was waiting to be born. It wouldn't be created by heroes on horseback but by the collective social action of people working together. Architecture, for Gropius and others of his generation, was a branch of social reform. The architect's responsibility was to promote the welfare of society by creating rational, economical, and well-designed places for people to live and work in.

As we might put it today, Gropius didn't believe in "starchitects." He wrote in his prospectus to Harvard: "The nature of teamwork will lead the students to good, 'anonymous' architecture rather than to flashy 'stunt' design." The Gropius-trained architect would not be an ego-driven form maker but would be the democratic leader and coordinator of a team of creative people.

In Gropius' career, these social and ethical ideals played out in three realms: teaching, practicing, and dwelling.

Teaching: At both the schools he led, Gropius promoted collaboration. At the Bauhaus he hired painters and sculptors who worked directly with students. Believing that the old world of handicrafts was disappearing, he sought to merge artistic creativity with modern factory production. Like Descartes, he believed a thinker should "start from zero," without preconceptions. He hoped to shape "the man who has been able to empty his mind of prejudice and all non-essential considerations and has thereby arrived at a state of new innocence which allows him to penetrate to the very core of his task."

Practicing: Gropius and the firm he helped found, The Architects Collaborative, became known not for private mansions or art museums—the building types loved by high-style architects—but rather for socially responsible programs such as housing, hospitals, and schools. TAC architecture seldom drew attention to itself, but did its job while respecting its context. The very firm name is a nod to the ideal of anonymity. At Six Moon Hill in Lexington, young TAC families and their friends created a semi-commune where they lived as a group, albeit in individual houses. Their inexpensive dwellings, assembled like houses of cards from simple wall and window panels, were a metaphor for the adaptable, industrialized construction Gropius believed in.

Dwelling: When Gropius arrived at Harvard, Dean Joseph Hudnut told him, "You have to live in Beacon Hill to be socially acceptable." Instead Gropius collaborated with his former student Marcel Breuer on an unpretentious house in rural Lincoln. The result was a livable home that embodied ethical lessons: lessons in the value of collaboration, in personal modesty, in respect for the natural world, and in trusting the tools of contemporary technology. Perhaps Beacon Hill felt too European: The American suburb was a memory of the green frontier. ■

Robert Campbell FAIA, architect and writer, is the Pulitzer Prize–winning architecture critic for *The Boston Globe*.



Matie Szabo

With Breuer, designs Aluminum City Terrace, worker housing for Alcoa in New Kensington, Pennsylvania.

1941

1945

Helps found The Architects Collaborative (TAC) in Cambridge, whose important works include the Harvard Graduate Center (1948).



Cambridge Historical Society

1959

Awarded the Gold Medal by the American Institute of Architects.



Christine Ciprani

1961

With TAC, designs the award-winning Wayland High School, which is demolished in 2011.

Scientist

by Henry Moss AIA

Henry Moss AIA is a principal at Bruner/Cott & Associates, whose architectural practice includes adaptive reuse of historic industrial buildings and rehabilitation of midcentury Modern architecture.

When Walter Gropius first visited the United States in 1928, he was eager to explore the massive concrete grain elevators and automobile assembly plants of Detroit and Chicago. These stark, industrial buildings had been the focus of a seminal article he had written for the 1913 yearbook of the *Deutschen Werkbundes*, which promoted industrial design in Germany, and he couldn't understand why Americans did not admire them more. To Gropius, they were an inspiration.

"When I was a boy my family lived in a city apartment with open gas-jets and coal-heated stoves in each room," Gropius recalled in the article. "There was no electric streetcar, no automobile, no airplane; radio, film, gramophone, X-ray, telephone were nonexistent." Compared with Britain and France, Germany had been slow to industrialize, and Gropius believed the future lay in industrial workplaces and the products mass-produced there. It was this desire to add industry to the twinned creative spaces of studio and workshop that became the basis of the Bauhaus.

In his own work, Gropius stressed functionality and simplicity, using mass-produced fittings of steel, chrome, and glass in the factories and office buildings he designed. He believed it was not only efficient and sensible to use mass-produced materials; it also created egalitarian spaces where people of all economic and social classes could mix.

Look, for example, at the architect's design for the Fagus Shoe Factory in Alfeld. Believing that improvements in lighting and ventilation would increase workers' productivity, Gropius designed large curtain windows that surrounded each of the three stories. The building had a steel frame to support the entire structure, thin brick piers to mask the vertical steel framing, and horizontal brick layers that separated each of the stories. A similar form of curtainwall illuminated the Bauhaus building he designed in Dessau in 1926. In both instances, Gropius' structural innovations reveal him to be a sophisticated engineer.

Yet it remains unclear why the delicacy and audacity of Gropius' earliest efforts—the Fagus factory, *Werkbund* pavilion, and the Bauhaus—did not continue through into his later work. With fine massing, figuration, relief, and tautness, these façades appeared on both sides of World War I, but the visual refinement did not cross the Atlantic.

What Gropius did bring to America was a continued desire to use industrial elements in his buildings. He envisioned the armament plants of World War II converted to the manufacture of prefabricated housing made of glass, steel, and concrete. They would be trucked to building sites and added to, room by room, as families grew. In 1942, Gropius partnered with Konrad Wachsmann to promote the Packaged House System, which used prefabricated panels, though it failed to sell.

Gropius' belief in the use of industrial materials remains a constant in American design—whether used well or poorly. Today, some of our best architects are realizing Gropius' invocation of scientific precision with complex new advances in glazing technology. Though frequently shaped by environmental objectives that were secondary during Gropius' working life, the influences are nonetheless present. One need only look at the glass façade of William Rawn's new Cambridge Public Library to see echoes of the Fagus factory.

Even as he reduced the connection between science and manufacturing to a matter of mass production, Gropius never forgot the spiritual potential of the artist. Architects all too easily take his 100-year-old insights for granted—and we may even imagine that they are our own. ■

Dies on July 5 in Boston. Members of TAC still celebrate his birthday (Gropefest) each May.

1969



The Architects Collaborative

Ise Gropius deeds the Lincoln house to the Society for the Preservation of New England Antiquities (now Historic New England). It remains the most popular of all Historic New England's properties and will celebrate its 75th anniversary this year.

1980

1995

TAC dissolves in bankruptcy. Two of the original eight founders, Norman "Fletch" Fletcher and John "Chip" Harkness, stay with the firm for its entire 50-year existence.

Mentor by Alex Cvijanovic

When I graduated from Harvard's GSD in 1954, I asked my friend, "What is the best architectural design firm in Cambridge?" He told me, "The Architects Collaborative, but you'll never get a job there. Everybody wants to work there. You have no experience."

But I went anyway to make an application. It turned out that one of the partners, Bob McMillan—who had been a GI stationed in Paris during the war—had met his wife there. She was French and, since I spoke French, he thought I would be useful. Then I met Gropius, and he discovered I spoke German, also useful.

Those were exciting times; TAC was exploding with work. In a few short years, we built 50 schools all over New England. McMillan used to take me on "supervisory trips," where we would go and check on the progress of one of these schools in the morning and then find someplace to have a good lunch. All those partners knew how to enjoy themselves.

In those years, Gropius began getting work for TAC in Germany; he was still much admired there, and he needed someone to go with him who also spoke German: me. I was born the same day and year as his daughter, Ati, and I think that was significant. We had a connection; I was the son he never had, and he was the father I lost as a young boy. I was with him for his work on many of his German projects, including Gropiusstadt, a Berlin housing complex; the Bauhaus Archive; and the Rosenthal Glass factory.

Gropius was a generous man, even as he could be rigorous and demanding. He wanted to be treated like everyone else. For him, everything was teamwork. I remember we had one designer whom nobody liked. We all wanted to fire him, but Gropius refused. "He's got something," he told us. "Everybody's got something to offer; you just have to find it."

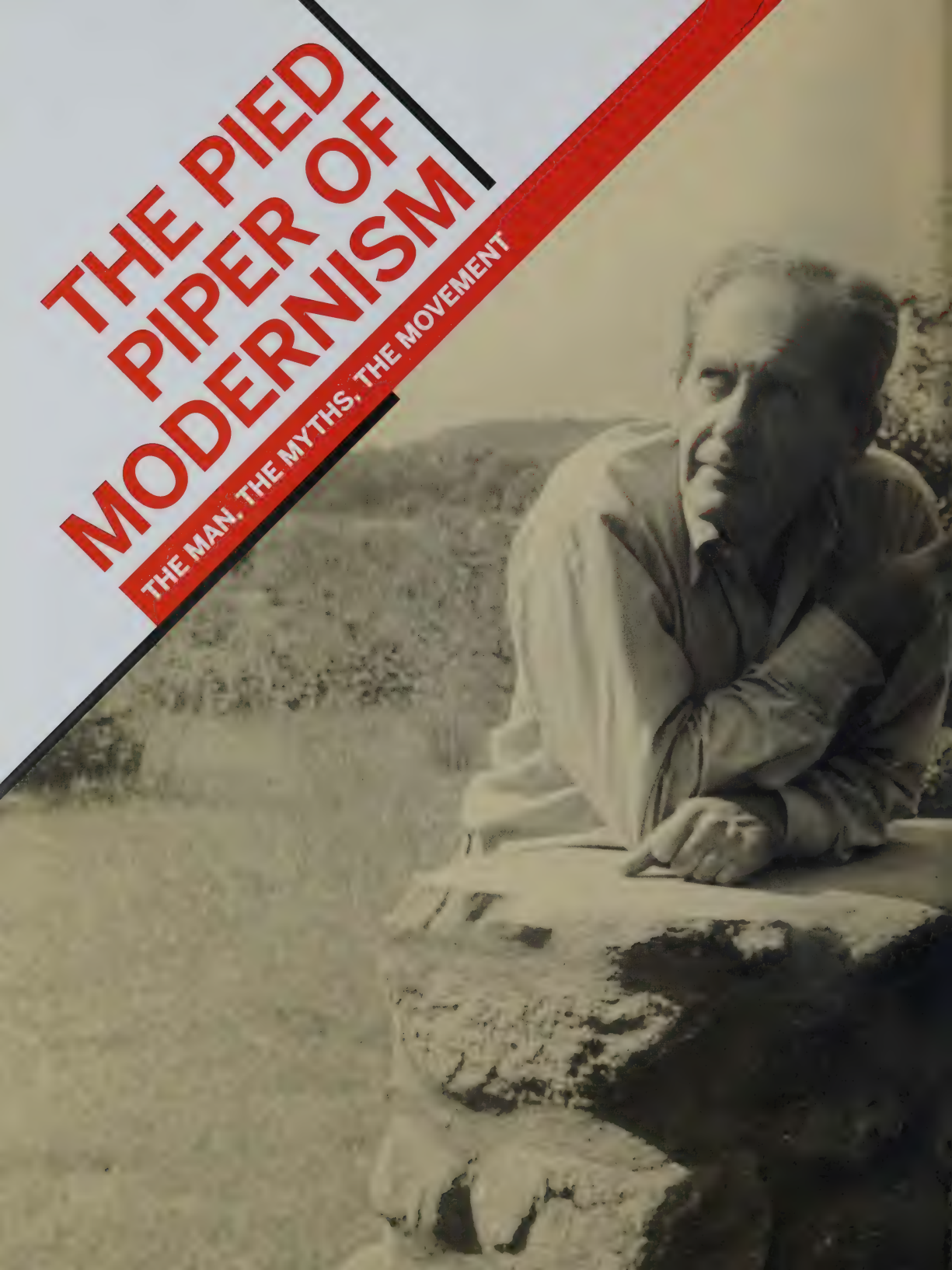
We designed two factories for Philip Rosenthal's ceramics company in Germany, and Gropius began by asking the industrialist how he treated his workers. Women would sit on the assembly line for hours, just painting one line on a plate. Gropius thought it was inhumane. By the time he was done, he had Rosenthal build a library for the workers, and a concert hall. He also thought the women should have something beautiful to look at while they painted their plates, so he designed a greenhouse filled with tropical plants.

At another lunch, he asked Rosenthal what the factory did to celebrate the New Year. "My workers chase a pig, catch it, and then we have a pig roast," Rosenthal said. Gropius didn't think they should kill the pig; it was bad luck. So he offered to design a house for the pig, KoKo. Out of marble. Right there, next to the factory. ■

Alex Cvijanovic fled Yugoslavia in 1946 at age 18, shortly after the Communists murdered his father. He studied architecture in Paris and then moved to Cambridge. He worked for TAC from 1956–86.

THE PIED PIPER OF MODERNISM

THE MAN, THE MYTHS, THE MOVEMENT



BY DAVID FIXLER FAIA

Modernism is an infinitely complex phenomenon, one that has been under active dissection for decades and that continues to be an area of energetic discovery and debate. There are Apollonians, Dionysians, true believers, and skeptics, but if one craves a single orthodox symbol of the arc of the Modern Movement from 1911 to 1969, it may very well lie in the person of Walter Gropius.

Gropius arrived in America in 1937 from an increasingly troubled Europe to assume the chairmanship of the architecture department at Harvard's Graduate School of Design. This event had many consequences in shaping the trajectory of modern architecture in this country, but two are particularly of note. The first is that Modernism suddenly acquired an academic legitimacy that it had not previously enjoyed by the fact that the movement's best-known educator—a founder of the Bauhaus—had assumed a critical position at the head of the architecture school in what is arguably America's leading academic institution.

The coming of Gropius to America was chronicled by the Swiss architectural historian Sigfried Giedion, his longtime friend and contemporary at Harvard and the author of the first complete draft of the history of Modernism, *Space, Time & Architecture*. Giedion's chronicle simultaneously simplifies and augments the outsize influence that Gropius was to have on the course of American architecture.

And therein lies the second consequence. Conspicuously absent in Giedion's telling is GSD dean Joseph Hudnut's pioneering work in establishing a Modernist pedagogy at Harvard, and equally conspicuously noted is the notion that when Gropius completed his house in Lincoln, Massachusetts, people would come to see his modern house, of which "not a single example could be found within a radius of upwards of a hundred miles." Both of these statements downplayed the degree to which Modernism had already gained a foothold in the culture of New England—modern houses had existed in Greater Boston since 1932, and there were in fact examples already in his new hometown—and helped to establish the myth that Gropius bore almost singular responsibility for forever changing the course of both architecture and architectural education in America.

Modernism became the architectural symbol of liberal western democracy following World War II, a victory ratified in its choice for the United Nations headquarters in New York City (1947–52). It quickly supplanted most of what was left of the Beaux-Arts system in American education and was embraced by the building industry for its promised potential for speed and efficiency in construction. A key element of this success is the association of Modernism with science and technological progress—often in the form of mass production—all developed to foster social justice and uplift the human condition. Gropius embodied these ideals as a Modernist in a way that was most understandable to the greatest number of people, and, in this way (with Giedion's assistance), he became its Pied Piper.

By contrast, the other great European transplant architect and educator, Mies van der Rohe, was a purist whose relentless pursuit of universal space and the perfect detail was too rarified a quest to engender mass appeal, while Le Corbusier, Frank Lloyd Wright, and Alvar Aalto were greater artists—and perhaps even more in touch as designers with real human need—but they never developed Gropius' method as an educator, which proclaimed a system of design for the masses, ready to tackle the problems confronting the postwar world on a large scale.

The Cambridge academic and research communities, which drew Gropius here in the first place, believed strongly in the potential of Modernism to physically and intellectually reshape America and the world into the utopia that had always been held out as the ultimate goal of the Total Design project promoted by the Bauhaus. Thus Gropius, by temperament, academic position, and geographic location, was perfectly positioned to take advantage of the excitement engendered by the promise of Modernism in the immediate postwar era and to consolidate his position as America's premier architectural educator.

LEFT
Walter Gropius in Lincoln, Massachusetts, circa 1940. Courtesy Harvard Art Museums/Busch-Reisinger Museum.

Concurrently, Gropius was approached by some former students and younger colleagues and formed The Architects Collaborative (TAC), which embraced Gropius' ideals of community and team-based design. Although the work of TAC is evaluated elsewhere in this issue, a brief digression on one project—the Harvard Graduate Center (1948)—illustrates both Gropius' design philosophy and its shortcomings.

In many ways the Graduate Center is the extension and last project of Gropius' Heroic prewar period: More than almost any other building of its era, it represents the Bauhaus ideals in siting, form, and material, and could easily be mistaken for a Central European housing estate, circa 1926–30. Although the complex is designed with a finely calibrated adherence to a "scientific" program, its abstracted universal expression in no way acknowledges the particular spirit of Cambridge. This, coupled with the severe space standards in the dormitory rooms, has consistently prevented its broad acceptance within the physical and cultural fabric of Harvard.

It is enlightening to compare the Graduate Center with Aalto's Baker House residence hall at MIT—its exact contemporary, two miles away, by another giant of European Modernism. Aalto is no less abstract and modern in his approach to form and social ideals, but there are critical distinctions in the clues that Aalto takes from the context of MIT and Boston, and in his ultimate focus on designing for a panoply of needs to ensure that both the private space of the individual and the collective space of the community form a successfully integrated living environment. These strategies have contributed to the enduring success of Baker House, both as a building and as an integral part of MIT's culture.

Gropius retired from Harvard in 1953, though his educational methods largely remained in place for some time under a succession of administrations. He increasingly focused his energies on TAC and took on the mantle of senior statesman, traveling the world serving on blue-ribbon panels and juries, and lecturing on a broad range of topics. At the same time, Modernism's postwar hegemony began to slowly come apart as questions mounted concerning its perceived inability to acknowledge or accommodate diversity in human need and experience.





It is at this point—as the first Gropius acolytes go out into practice and TAC itself begins to build on a large scale—that the mystique of Gropius enlarges in the public eye, and, simultaneously, Modernism's conceptual flaws first become evident. Much of this critique is focused on method: the rigorous diagrammatic functionalism that removed any sense of wonder, continuity with history, or monumental expression from the act of creating architecture—turning it, in essence, from an art into a process.

On the positive side, a "Cambridge Modern" style emerged in the output of TAC and its numerous offshoots, representing a regional softening of the harder edges of Modernism, which, though ultimately owing only token guidance to Gropius, is writ large in the rest of the world under his name. It is perhaps ironic that TAC and its closest cousins in Cambridge became the rare exception among the best-known firms created by Gropius students, such as those of Philip Johnson, Paul Rudolph, Edward Larrabee Barnes, and I.M. Pei, which all evolved, in large part, along a more traditional atelier model with the signature figure at the head and often (sometimes famously) struggled with the Bauhaus/Harvard pedagogy as they evolved into mature practices.

In his essay *Apollo in the Democracy*, published in a volume of collected writings of the same name in 1968, Gropius speaks—perhaps for the first time—of the "creation of beauty and … its reverberations within the democratic society." This is poignant, as the critique of orthodox Modernism was building to a crescendo at this time and was in considerable part based on the fact that concern with beauty in its largest sense—as the creation of that which fulfills deep human aspiration and desire—was largely absent from the Bauhaus/Harvard method.

Although we need not go so far as Colin Rowe—arguably Gropius' successor as the most influential architectural educator of the latter part of the 20th century—in proclaiming Gropius to be "largely inept" as both an architect and an educator at the nadir of Modernism's slide in the public eye in the early 1980s, it is nonetheless in our best interest to look at his role with a clear eye and a critical voice, for only then will the many positive aspects of his legacy be able to stand tall beside—and with acknowledgment of—its flaws. ■

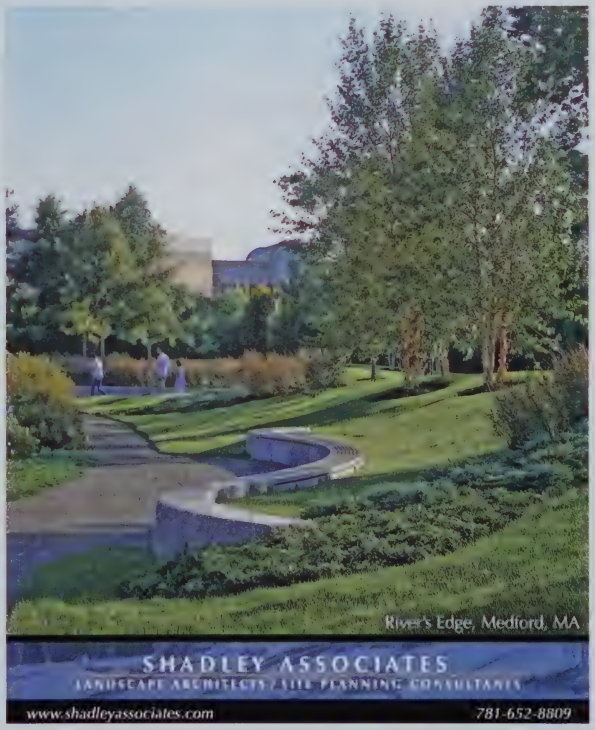


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the cambridge school

What went on at 46 Brattle Street

by Michael Kubo



RIGHT
The Harvard Graduate Center, Cambridge, Massachusetts, 1949. Courtesy Harvard Art Museums/Busch-Reisinger Museum.

OPPOSITE
Left to right: Ben Thompson, Jean Fletcher, and Norman Fletcher. From *The Architects Collaborative*, published 1966 by Arthur Niggli, Switzerland.



In the years after World War II, Walter Gropius increasingly challenged architects to overcome what he saw as an outmoded ideology that "has taught us to see in the individual genius the only embodiment of true and pure art." Instead, a philosophy of anonymity and teamwork would be the keys to progressive architectural production in an expanding postwar society. Central to this redefinition of practice was The Architects Collaborative (TAC), the firm established in 1945 by eight architects, including Gropius, and through which he practiced for nearly half of his professional career.

Founded as an experiment in collective production, TAC would eventually become the largest dedicated architectural practice in the United States, with more than 380 employees at its peak in the 1970s. In these decades, the firm's headquarters at 46 Brattle Street formed the nucleus of a vibrant professional culture of architects and designers gathered around Harvard Square, many of them working in offices indebted to the collective atmosphere first established by TAC. Sometimes referred to by its legatees as the "Cambridge School," it was here that the postwar evolution of Modernism would take place.

Telling the story of TAC requires confronting a persistent myth surrounding its origins: that Gropius established the firm together with "his" students. The attribution would seem to make sense given his long-standing emphasis on teamwork among holistically trained designers, an approach he promoted through collaborative workshops first at the Bauhaus and later as chair of the architecture department at Harvard's Graduate School of Design. In his talks and writings, he said young designers must "learn to collaborate without losing their identity" in order to contribute to the urgent building tasks of their time. Drawing on these pronouncements by the prewar European "master," historians have often taken TAC simply to be Gropius' application of these ideas through a group of disciples who would realize this collaborative ideal in practice.

Yet the true origins of the firm were largely the opposite. The seven younger architects who came together to form TAC were linked not by an allegiance to Gropius but through a network of overlapping personal and professional connections, formed in a shared climate of social and architectural optimism. Norman ("Fletch") Fletcher, Louis McMillen, Robert McMillan, and Ben Thompson had been classmates at Yale, where they had already talked about forming what Fletcher called the "World Collaborative," "an ideal office" that would combine painting, sculpture, and architecture.

John ("Chip") Harkness had worked with Fletcher during the war (both were conscientious objectors) at Skidmore, Owings & Merrill in New York, and later, with Jean Fletcher, for Saarinen and Swanson in Bloomfield Hills, Michigan. Jean Fletcher and Sally Harkness had both studied at the Cambridge School of Architecture and Landscape Architecture, the first degree-granting graduate school in the US for women to study design. Chip and Sally had married in 1941; Jean and Norman, in 1945.

Committed to forming a collaborative practice, this group of friends decided that adding an experienced senior practitioner would both help them find their way in the field and lend stature to the young firm. Other figures may have been considered (Fletcher mentioned Louis Kahn and George Howe as possible collaborators), but coincidence intervened to bring Gropius on board. After returning from wartime medical duty, Chip received a letter from Fletch proposing a collaborative office on the same day Gropius asked him to teach in the master's class at Harvard; Chip pitched the idea to his professor, who quickly agreed to join.

In Gropius, they found not only an eminent practitioner but also a highly sympathetic collaborator, one whose attitude toward the value of teamwork closely matched their own. The goal of the eight founders was, in Sally Harkness' words, "to remake the world."

Collaboration at TAC meant something very different from the specialization common to other large-scale practices. Key to this approach was the idea that teams

we all worked around a table, sharing ideas, drawings, and collaborating in the way god and grope intended.

—Perry Neubauer



when we come down from the clouds, a meaningful architecture will be created in our time. when we come to grips with the present, there is a chance we will influence the future.

—Ben Thompson

should consist of generalists able to criticize each other as equals, rather than the parceling of tasks among specialized practitioners according to principles of efficiency and division of labor. Working at other team-based firms meant suits and ties, a time clock, and a rigid chain of command; TAC meant corduroys and jeans, wild (occasionally scandalous) office parties, and a messy environment of shared investigation closer to an atelier than a corporate workplace. (Chief among these revels was the unfortunately named—but presumably tongue-in-cheek—Gropefest, a celebration of Gropius' birthday, which is still faithfully celebrated today.) John Sheehy, a principal at TAC who had previously worked for Skidmore, Owings & Merrill—the exemplar of the large corporate firm—described the difference between the two offices: "Architecture was either a way of making a living or a way of life; TAC was a way of life."

Embedded in this environment was Gropius himself, at once one among the partners and the singular figure identified with the outsize legacy of the Bauhaus. Employees new to TAC recounted their astonishment at finding Gropius, the legend, quietly eating his lunch in a packed Harvard Square sandwich shop or dealing with an uncooperative slide projector before a client presentation. He insisted on an equal status in weekly meetings where partners shared criticism of one another's projects.

Although historians have remained fixated on detecting the marks of his authorial signature—did he draw? which designs were really "his"?—Gropius' true role was as a member of the group, within the dynamics of the collaborative model itself. Sally Harkness summed up Gropius' importance as a thinker, collaborator, and critic at the heart of the firm: "Everybody wants to think of him as one of the world's great designers, but he wasn't. He was one of the world's great philosophers."

The loose structure at TAC was initially mirrored in the geography of the firm's workspaces, distributed in a network of buildings around Harvard Square. Names such as "Siberia" (90 Mount Auburn) or "Bensville" (One Story Street) referred to the partners who occupied them or their distance from the head office, a three-story house (63 Brattle Street) where, TAC member Roland Kluver recalled, "Drafting spaces were tucked around in the various odd rooms of the old house in a wonderful, crazy, overcrowded way."

In the early years, the young firm's work grew in parallel with the baby boom generation, moving from suburban houses and elementary schools to secondary education and then to universities, hospitals, office buildings, and other institutional and cultural commissions. The eventual consolidation of TAC's expanding offices in a purpose-built headquarters at 46 Brattle in 1966 spurred the development of what came to be known as the Architects' Corner, so called for the number of fellow architects who built their own buildings on neighboring sites. Earl R. Flansburgh, a former TAC member, built his offices directly behind on Story Street, while Josep Luís Sert, Gropius' successor at Harvard, designed his firm's headquarters next door. The block was anchored by the distinctive vitrine of Ben Thompson's headquarters for Design Research, the store for modern home furnishings he began in 1953 while still at TAC.

Today the Architects' Corner forms a serene island of buildings amid the bustle of Harvard Square, gathered around its quiet inner courtyard and still announced by the luminous presence of the former Design Research (later Crate and Barrel, today Anthropologie). Few young architects realize its importance as an epicenter of building culture for more than three decades, as TAC grew to become the largest dedicated architectural firm in the country and a pioneer of the sort of large-scale, global practice that is ubiquitous today.

The firm's early involvement in the Middle East, beginning with a commission to design the University of Baghdad after 1957, led to more than 25 years of work in the Gulf states, including projects in Kuwait, Saudi Arabia, Iraq, and the United Arab Emirates. Instabilities in the region combined to precipitate the slow demise of TAC after 1983, eventually leading to the firm's bankruptcy in 1995.





Accounts of the prewar European Modernists who emigrated to the United States after World War II frequently reinforce the idea that their encounter with the economic imperatives of large-scale, mainstream professional practice could only have been negative. Perhaps no architect has suffered more from this narrative than Walter Gropius, whose involvement with TAC has often been cited by architectural critics as a cautionary tale of what happens when the work of the singular "master" collapses into bureaucracy and formalism. Yet TAC was a success, not just economically but on the idealistic terms laid out by the firm's founders, Gropius significantly among them. The legacy of its collective ethos lives on in the many successor firms founded by its former principals and employees, many of them collaborative and multidisciplinary in their own right: Cambridge Seven Associates (C7A) in 1962, Benjamin Thompson and Associates (BTA) in 1966, and ARC/Architectural Resources Cambridge in 1969, among many others.

Beyond these direct inheritors, the collaborative discourse epitomized by TAC continues to influence the way architects practice today, as evidenced by the innumerable offices whose acronyms speak the anonymous, collective language of teams, laboratories, and groups. In 1966, looking back on the first two decades of TAC's work, Sally Harkness laid out the path for this next generation of architects: "There are two ways to go—towards competition or towards collaboration.... A world that believes only in survival through competition must always be at war." ■

CLOCKWISE FROM TOP LEFT
Phillips Academy, corner of the Athletic Wing. From *The Architects Collaborative*, published 1966 by Arthur Niggli, Switzerland.

From left to right: Chip Harkness, Jean Fletcher, Norman Fletcher, Walter Gropius, and Louis McMillen.

Hanscom Elementary School. From *The Architects Collaborative*, published 1966 by Arthur Niggli, Switzerland.

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the things they cherished

PHOTOGRAPHS BY **ERIC ROTH**

When Walter Gropius and his young family came to America in 1937, they brought their books, some handmade furniture from the Bauhaus workshops in Germany, and little else. But they also brought a peerless eye for good design, as natural as perfect pitch. When they built what daughter Ati called their simple "econo-box" of a home in Lincoln, Massachusetts, the next year, they began collecting art and artifacts that, over time, annealed into an aesthetic. Today the Gropius House is a National Historic Landmark, but it is the ordinary everydayness of their lives that endures in the objects of their affection.







THIS PAGE
A desk in walnut and birch, designed by Walter Gropius and manufactured in the Weimar Bauhaus Carpentry Shop in 1922. A chrome, cane, and pine chair by Marcel Breuer, 1928–30, manufactured by Thonet. The desktop book rack, designed by Egon Riss, is made of laminated birch. On the wall: Herbert Bayer's 1935 oil on canvas *Stable Tools* was a gift from the artist and reflects a layering of abstraction and surrealistic effect.

OPPOSITE
Reclining figure, a Henry Moore sculpture in bronze, was a gift from the artist.

LETTERING
Courtesy Andrew Byrom.
www.andrewbyrom.com



CLOCKWISE FROM TOP
Pre-Columbian and Mexican folk art, mementos of a 1946 visit to Mexico.

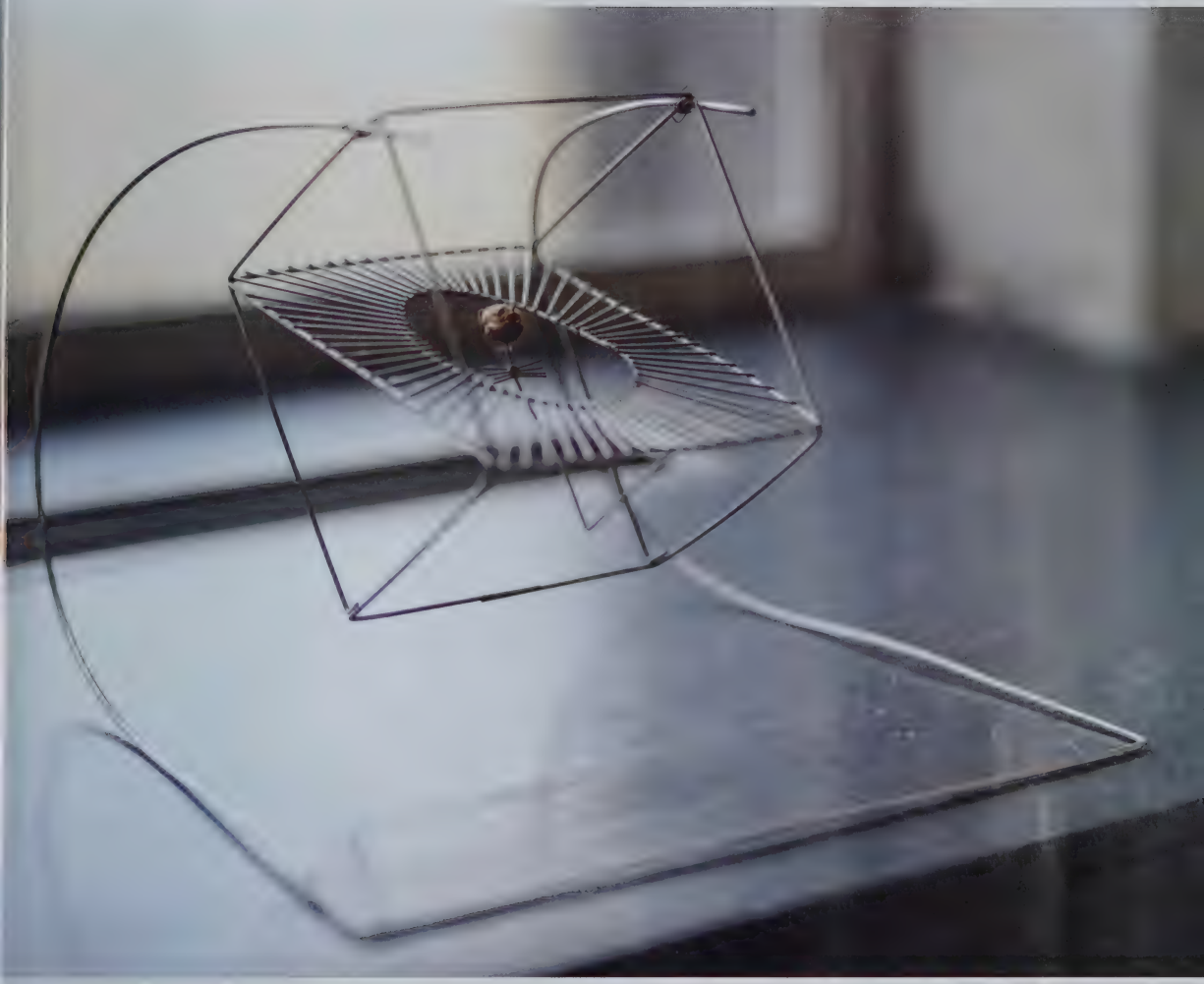
A small wire sculpture by William Wainright, 1960–70. The radiating spokes, snapdragon seed, and central bow tie allude to Gropius as the center of the design universe.

This plywood, birch, and maple magazine rack, called a donkey after its shape of four legs and two panniers, was designed by Riss for Isokon.

Walter Gropius eyewear.

A double desk of maple and butternut veneer, by Breuer, 1925, was designed for Walter and Ise Gropius and manufactured in Bauhaus Furniture Workshops, Dessau, Germany. The swivel chair and its companion stable chair, manufactured by Knoll, were designed by Eero Saarinen.















CLOCKWISE FROM TOP
A bronze prototype of a Dimitri Hadzi sculpture, *Thermopylae*, located at the John F. Kennedy Federal Building in Boston.

Multicolored wool rug on the wall was purchased in Samawa, Iraq, by Louis McMillen and given to the Gropiuses in the 1960s. The night tables are circa 1925, by Breuer. The table lamps were reproduced in 1988 from the original 1924 Bauhaus design by Tecnolumen.

Ise Gropius' costume headgear from the 1970 Gropefest.

Collaboration, a 1951 painting on plaster by Serge Ivan Chermayeff.

A 1936 original design, this Breuer lounge chair is made of plywood, birch, canvas, and stuffing. Ise Gropius added the sheepskin throws. Legend has it Breuer was inspired by the handlebars of his bicycle when he designed the 1925 side table.

















CLOCKWISE FROM TOP
Kitchen canisters and everyday dishes.

Dining table and chairs designed by Breuer at the Bauhaus Dessau, 1925. The table, made from laminate, chromed brass, and pinewood, was part of the original furnishings in the Bauhaus director's house.

A Gropius family arts and crafts project.

Dining-room glass block wall with *G7a*, a 1925 painting by László Moholy-Nagy.

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WWSD?

RESTORING A MODERNIST ICON

by Matthew Bronski PE
and Brent Gabby PE



ABOVE
The Gropius House in Lincoln, Massachusetts. Photo: Irwin Miller.

Anyone might reasonably assume that restoring an early- to mid-20th-century Modernist house designed by an internationally acclaimed architect would be easier than restoring the late-19th-century house across the street designed and constructed by a local builder. After all, construction knowledge and technology in general would have progressed in the intervening decades, and having one of the great architects of the century focusing his considerable talents on something as simple as a house would surely reduce any problems we might encounter, right? Yet our experience has taught us that just the opposite is true: The Modernist icon is often more fraught with technical shortcomings in its original design and is typically much more challenging to restore than the run-of-the-mill older house across the street. And although any restoration project can pose philosophical dilemmas and technical challenges, these tend to be more pervasive in projects on Modernist icons.

Philosophical dilemmas

The basic preservation philosophy established at the outset of any project often derives from careful consideration of the deceptively simple question: What are we really trying to preserve? With many older, more traditional historic houses, that question is often answered simply, with "the historic artifact." This leads to a familiar approach that entails preserving as much of the historic fabric (that is, building materials) as possible. After all, the builder of the older house across the street was not trying to lead an architectural revolution, nor was he trying to build the embodiment of a utopian ideal. But the iconic works of Modernism are often iconic precisely because they represent an effort to design and construct the physical embodiment of an idea or philosophy. This gives the fundamental question What are we really trying to preserve? two different, equally valid answers: "the artifact" or "the idea." The two answers would lead down very different paths involving very different approaches, and ultimately to very different things either being preserved or potentially lost or obscured in the restoration.

Even a task as seemingly straightforward as replacing a severely deteriorated wood 2 × 4 stud is informed by the general philosophical approach established at the outset of the project. With the design of Walter Gropius'

own house in 1938, for example, an important idea was the use of readily available, factory-made, "off-the-shelf" building materials and fixtures for everything in the house, with the sole exception of the stair rail. Because wood studs are a different size and profile today than in 1938, preserving "the idea" of the house might lead us to use an ordinary off-the-shelf 2 × 4 wood stud as a replacement, while preserving "the artifact" might lead us to custom mill new studs that match the original size and profile. During our exterior restoration of the house about 15 years ago, after a great deal of thoughtful discussion of both approaches, the owner and steward of the house, Historic New England, decided to custom mill studs to match the size, profile, and species of the originals but clearly label them as replacements with durable copper tags.

Trying to ask the question "What would Gropius do if he were alive today?" is an invitation to delve into the netherworld of "séance architecture" (a wonderful term we borrow from architect Ann Beha). It simply isn't a viable basis for restoration decision making.

Technical challenges

In constructing that run-of-the-mill traditional house across the street, the builder's lack of aesthetic or technical innovation meant that he didn't need to invent new technical details of consequence, but rather could draw from the long-established collective knowledge of what had already proven to work well and be durable in the local climate, with the locally available materials. In essence, the major "bugs" in the original design and construction had already been worked out over the course of many decades, with the successful details "surviving" and carrying forward, a process we refer to as "architectural Darwinism."

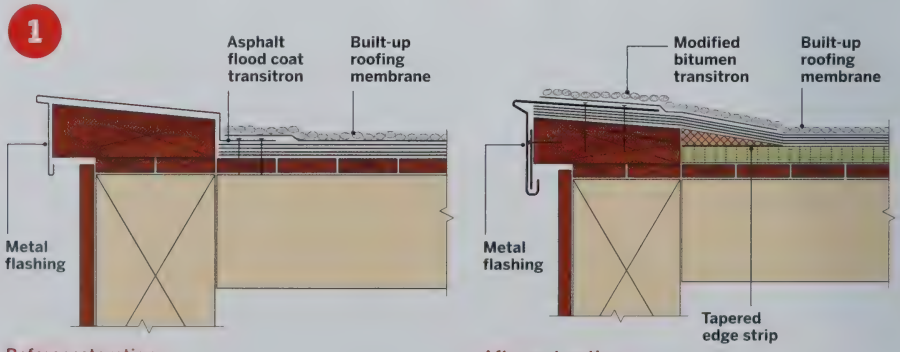
But in the Modernist houses, innovation made it necessary for the architect to develop new designs for technically critical details, such as wall sections at window heads and sills, or roof-to-wall transitions. It's extremely difficult for anyone, even a truly great architect, to reinvent these technically critical details from scratch and not encounter any problems, such as leakage or deterioration. In reality, what often happened was the process of working out the bugs began anew, with the owners bearing the unfortunate burden of "beta testing" the new design and living with the problems.

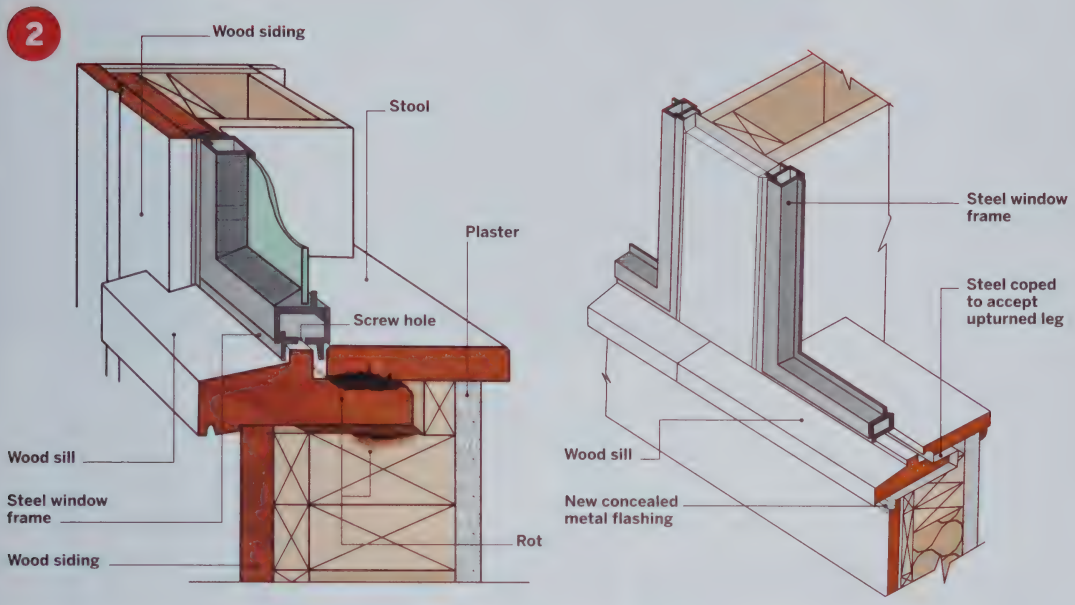
No Modernist house is more iconic than Le Corbusier's Villa Savoye (1928–31) outside Paris, and the series of urgent distress letters that Madame Savoye wrote to Le Corbusier in the first few years after its construction—complaining of severe roof leaks in many rooms—demonstrate both the formidable technical challenge of inventing new, technically critical architectural details (in this case, for the waterproofing of flat terraces over occupied space), and the unfortunate role of an owner in the beta testing.

Similarly, on Frank Lloyd Wright's one-story Zimmerman House (1951) in Manchester, New Hampshire, the unvented, minimally sloped clay tile roof directly over a "cathedral ceiling" of heated interior space was a veritable ice-making machine each winter, creating massive eave ice dams and resultant soffit damage prior to our roofing restoration in 1999 and 2000. Our restoration design created a thin, concealed "overdeck" to vent cold air to the underside of the roofing, and thus prevent ice dams, while not disturbing the beautiful cypress ceiling inside.

Philip Johnson's Thesis House in Cambridge (1942) currently suffers from the decay of structural wood framing members that are buried below grade—a detail that any carpenter would know to avoid but that derived directly from Johnson's aesthetic desire to have the courtyard feel like a seamless extension of the interior living space of the house, by making the interior floor and the exterior courtyard flush and avoiding any step-up from outside. Our team's work involves structurally

BELOW
Original troublesome roof eave detail at the Gropius House, and new detail from the restoration.





repairing the decay and implementing concealed waterproofing.

Although the technical problems with Modernist designs are occasionally attributed to shoddy construction or a shortage of quality materials during or between the world wars, we haven't found that to be true on any of the buildings we have investigated or restored. Rather, the problems we have encountered most often derive from inherent shortcomings in the original design. The Gropius House was no exception:

Originally the gravel-stop flashing along the roof edge was a continuous piece of metal flashing (without expansion joints) that joined the built-up roofing membrane in a flood-coated lap. Years of cyclic thermal expansion broke this lap, creating leakage and wood rot. (See Fig. 1.)

The window head detail originally included a lead flashing, but the asphalt-saturated felt waterproofing behind the wood siding was mislapped behind the flashing. This is akin to tucking your raincoat into your pants and expecting your pants not to get wet. Predictably, the interior plaster at the window head was deteriorated in locations where water bypassed the wood siding above and reached the felt.

The windowsill detail was the most troublesome and led to the most extensive deterioration. Unlike the window head and the roof edge, the windowsill had no flashing, which was needed to capture window leakage and keep it out of the wall assembly. Further exacerbating the problem was a wood sill profile that almost seemed designed to direct water inside the wall. Predictably, the stud framing beneath the windows was severely rotted and required extensive replacement. (See Fig. 2.)

The real techniques and the foremost challenge

When a tour guide at a restored Modernist house mentions a challenging restoration project, the visitor might imagine craftspeople in white gloves and lab coats working with syringes and tweezers, and might think of any required design as being minimal to nonexistent—after all, what's to design, you are just restoring what's already there, right? In reality, Carhartt coats and power tools vastly outnumber lab coats and syringes, and the single greatest challenge of the restoration project is often the challenge of design. These Modernist buildings almost invariably have certain innovative original design details that are intrinsic to the architectural expression of the master but that have profound technical flaws inherent in their original design that caused major problems and deterioration.

The question then is not What would the master have done? The existing (failing) detail shows us what the master did; no séance is necessary. The real question and the truly formidable challenge of these projects then is how to succeed where the original design failed—how to maintain the aesthetics and appearance of the master's original design but completely rethink and redesign the detail, often beneath the surface, in such a way that it finally works. In other words, put away your Ouija board and put on your thinking cap. ■

ABOVE LEFT
Original windowsill configuration at the Gropius House that lacked flashing and caused extensive rot of the wood framing beneath the windows.

ABOVE RIGHT
Windowsill detail as revised during the restoration, introducing concealed metal flashing beneath the sill to address and prevent water intrusion and resulting rot of structural wood framing beneath the window.

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a total theory of design

everything is connected to everything else

BY GORDON BRUCE



How much impact did Walter Gropius and his Bauhaus theories have on the world of 20th-century industrial design and corporate design programs?

One might argue that Gropius' greatest contribution as an architect can be found in the early buildings of his career in Germany, and not in his American period. But there is no doubt that his Bauhaus influence laid the groundwork for a generation of American designers and architects whose credible, intelligent design programs have used architecture, design, and art to create all manner of products and identities that reflect the Bauhaus "total theory of design" and "less is more" philosophies.

Surely Steve Jobs felt the influence. In his biography of the computer genius, Walter Isaacson writes of the Apple CEO's devotion to Modernist design. "I love it when you can bring really great design and simple capability to something that doesn't cost much," Jobs said. "It was the original vision for Apple. That's what we tried to do with the first Mac. That's what we did with the iPod."

Jonathan Ive, who was lead designer for much of the Apple product line, often points to Dieter Rams (product designer for Braun) as a mentor, but Jobs took his Modernist influences from many sources. He regularly attended the annual International Design Conference in Aspen, Colorado—an incubator for Bauhaus theory launched in 1951 by Walter Paepcke, the famous American industrialist and philanthropist, and Herbert Bayer, Gropius' Bauhaus colleague. This Modernist ethos is reflected in Apple's corporate ideology: "Simplicity is the ultimate sophistication."

But wait. Let's go back a little further in the annals of American design. Whether or not Gropius influenced the creation of the iconic Apple computer, his theoretical fingerprints are all over another icon of American design: the IBM Selectric typewriter. For those of you who have only seen the Selectric in *Mad Men*, let me remind you that, in its time, the machine's type-bearing "golf ball" and immovable carriage were as much a symbol of masterful American design as Jobs' sleek iPad.

The Selectric was designed in 1961 by Eliot Noyes, a onetime student and colleague of Gropius. An accomplished architect, Noyes was also a pioneer in the development of comprehensive corporate design programs that integrated design strategy with business strategy. He considered himself the "curator of corporate character" for all his clients—IBM, Mobil Oil, Westinghouse, Cummins—and he always claimed Walter Gropius as his mentor.

Gropius' influence on Noyes actually started well before the German designer set foot on American soil. When Noyes began his architecture studies at Harvard in 1932, he found the school's Beaux-Arts curriculum geriatric. "None of this seemed to make much sense," Noyes wrote. "It certainly wasn't related to the problems of the 20th-century world."

As part of Noyes' search for contemporary thinking, he read Le Corbusier's writings over and over while also applying to the Bauhaus (unfortunately, just as the Nazis closed the school). As Noyes returned to reading the few books coming out of Europe, the University of Chicago asked him to travel to Persepolis (in what is now Iran) and document with drawings and paintings a trove of archeological findings. When Noyes returned to the Harvard design school two years later, Gropius and his design partner, Marcel Breuer, had joined the faculty, and Noyes was delighted to study with them.

After graduating, Gropius and Breuer hired Noyes to work in their design firm; however his employment was brief because Gropius recommended Noyes to Alfred Barr, Jr., to be the first industrial-design director of the Museum of Modern Art (MoMA). Noyes accepted. During his years at MoMA, Noyes ran a series of famous design competitions. He curated shows about "Good Design" using American products that demonstrated Gropius-inspired tenets: Good design must fulfill its functions, respect its materials, suit its methods of production, and all of the above must be combined into

OPPOSITE
Mobil petrol pump designed by Eliot Noyes, 1968. Courtesy Design Museum, London; IBM Selectric II Typewriter designed by Eliot Noyes, 1971. Courtesy Indianapolis Museum of Art.

an imaginative expression. Moreover, Noyes spread the Gropius gospel by running design education programs and reinvigorating the museum's permanent design collection. All of this was very much inspired by Gropius' zeal for education and his total theory of design.

Good Design

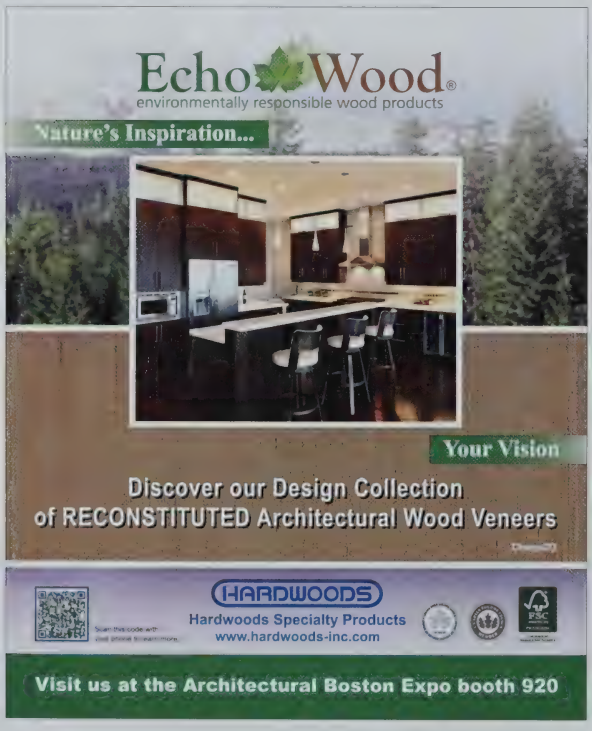
1. Fulfills its function
2. Respects its materials
3. Is suited to method of production
4. Combines these in imaginative expression

Eventually, Noyes felt a need to get out of the museum environment and participate in the real world of architecture and design. He had settled in New Canaan, Connecticut, in the 1940s, where he was identified with a group of architects known as The Harvard Five. They included John M. Johansen (Gropius' son-in-law), Marcel Breuer, Landis Gores, Philip Johnson, and Noyes. Four had been students of Gropius; Breuer had been his design partner. Eventually, those architects designed more than 100 Modernist homes in New Canaan, a number of which are now open to the public.

In his last public speech, Noyes recalled that time: "I had been, through my schooling and my contact with Gropius, interested in the notion of getting industry involved in recognizing its opportunities and even its responsibilities in relation to architecture and design and the public generally." He set out to persuade companies that using design effectively would benefit their image and their bottom line.

Noyes' first conquest was with his Army Air Force gliding buddy, Thomas Watson, Jr., the CEO of IBM. The designer convinced the businessman that his company not only needed good design, but he needed to make design a corporate goal. "It had to be treated as a function of management and could not be subordinated to engineering, marketing, or manufacturing functions, but rather be interlocked with them as a normal part of the company's business operations," the designer explained.

From 1957 to 1977, Noyes was the consultant director of design for IBM. He united the design spirit of architecture, interiors, displays, products, packaging, printed material, and fine art procurement. Noyes' first piece of advice to Watson was "Everything goes with everything," which was, essentially, the core of Gropius' total theory of design.





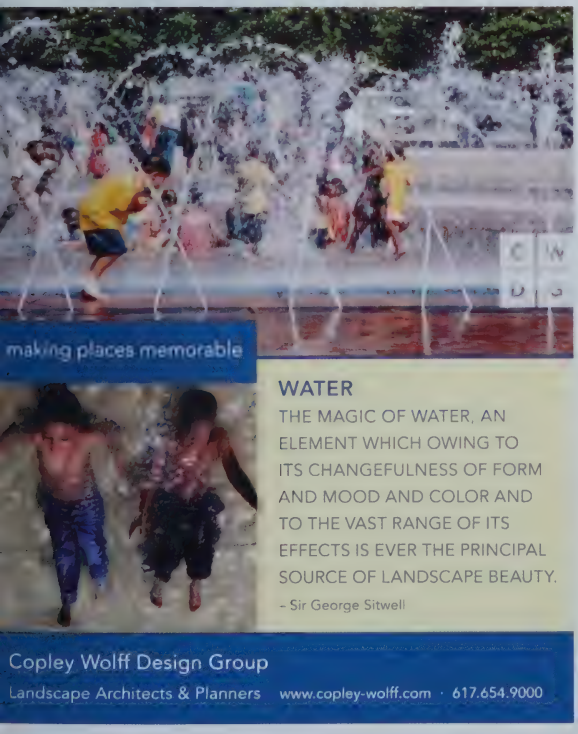
Noyes told IBM executives: "A cardinal point about design is that nothing exists or is used only itself. A typewriter sits in a room in a building. There must be a sense of their relationships in the design of each of these. Good design, whether of a building, an office machine, or a company's operating statement, derives from the nature of the problem: When the design problems have been solved, the end products will have in common clarity and appropriateness of form and this will often be coupled with invention."

IBM soon became a model for other major American companies such as Westinghouse, Mobil Oil, and Cummins Engine Company: Noyes played multiple roles at all of them as consulting design director. To achieve his goals, he selected key talents to work independently with corporate design staffs and with architects and industrial designers in his own office. Noyes chose consultants such as Paul Rand for graphics and Charles Eames for exhibits and film for IBM and Westinghouse. For Mobil Oil, he worked closely with Ivan Chermayeff and Tom Geismar, who designed Mobil's famous graphic program. For extended architecture programs, he selected Marcel Breuer, Eero Saarinen, and Mies van der Rohe, while for his fine-art programs he commissioned Calder, Noguchi, and many other notable artists.

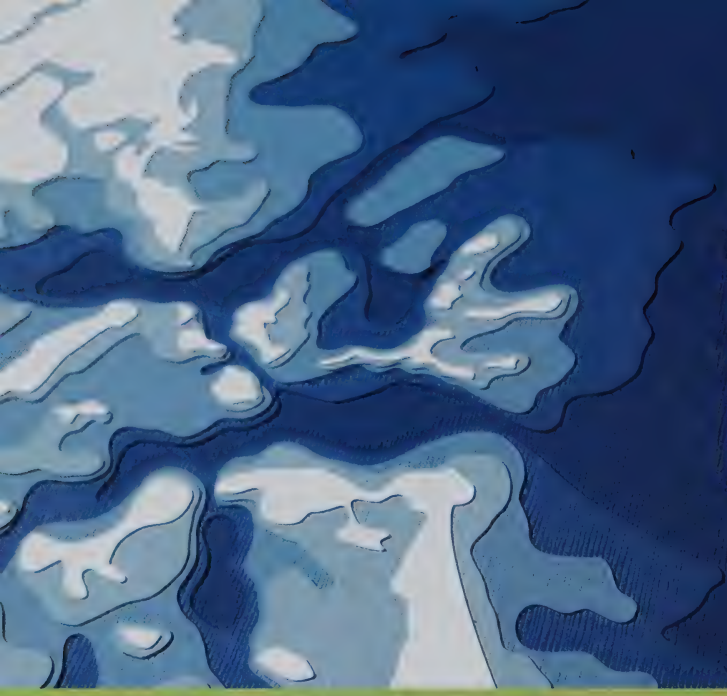
"All of us—Rand, Eames, Geismar, and many others—have been part of a generation or two of designers who grew up with many shared convictions and common ideals," Noyes explained of his Modernist fellow travelers. "It hasn't always been easy to explain to these companies, however, just what it was that we were doing for them beyond just design."

Fred Noyes, Eliot's youngest son and an architect, remembers Ise Gropius saying that Walter believed "Eliot was the only student who had actually gone beyond the teachings and extended the architectural thinking into broader contexts. Instead of taking lessons of what Modernism or design was about and continue to make buildings, which were in that spirit, he had really taken the conceptual framework and used it to extend the whole thing."

Today, we would not be able to talk about companies such as Apple or IBM—companies that have developed great corporate design programs—without Noyes and others who embraced the "total design" goals of the Bauhaus. If we are looking for the impact of Walter Gropius on American Modernism, we need look no further than these many disciples. ■







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Books



From Bauhaus to Our House
Tom Wolfe
Farrar, Straus & Giroux, 1981
Reviewed by James McCown

Tom Wolfe is one of our most erudite, and witty, cultural critics. He is at his best when skewering the conceits of the upper classes, academia, the media, the whole shebang. His iconic personal style, worthy of *Downton Abbey*, only furthers his distinction in a dress-down era.

From Bauhaus to Our House was his early 1980s send-up of Modernist architecture. It's fascinating to read this book with 30 years of hindsight. Think of that moment in architecture history: Postmodernism was ascendant; the elite architecture schools were encouraging their students to think beyond Modernist orthodoxy, but discussion about the building art had hardly filtered into popular culture. *Bauhaus* changed that. Here was a best-selling book that articulated what the vast majority of Americans thought—namely, why do some of my neighbors' homes look like insecticide factories? Nowhere was this more the case than in New England communities such as New Canaan, Connecticut; and Lincoln, Massachusetts, which had more than their share of Modernist houses.

"Our story begins in Germany after the First World War," is Wolfe's opening sentence, after which he proceeds to chronicle the growth of the cultural phenomenon called Modernism, which had so many roots: the devastation of war; the loss of faith in mainstream religion; the sheer and bracing desire to do something completely different, to crash the icons of the past. After all, Europe had blown itself to bits, and the philosophers had pronounced God dead; who needs cornices and Corinthian capitals, much less Gothic arches and steeples? White stucco, flat roofs, and pilotis, please!

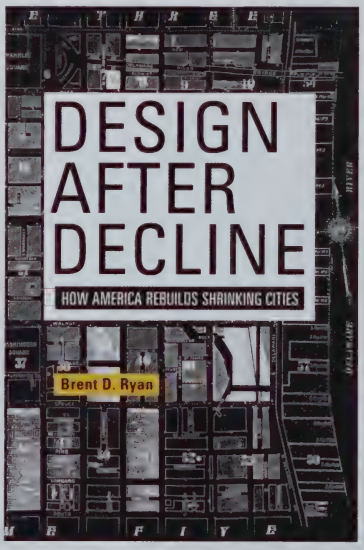
Le Corbusier and Walter Gropius are key figures in Wolfe's telling of this history, as one would expect. Maybe Gropius is singled out for special scorn, referred to mockingly as "The Silver Prince." Wolfe here describes the paternalistic attitude of elite architects toward "workers' housing," which was going to be an agent of the new utopia they had envisioned: "As Corbu himself said, they [workers] had to be reeducated to comprehend the beauty of 'The Radiant City' of the future ... there was no use consulting them directly, since, as Gropius had pointed out, they were as yet 'intellectually undeveloped.'"

Wolfe peppers the first couple of chapters with a mocking "how very bourgeois!" to describe the elite's attitude toward the masses. He also describes how the new Modernist religion was crossing the Atlantic, reminding us our own Museum of Modern Art "was not exactly the brainchild of socialists or visionary bohemians. It was founded in John D. Rockefeller's living room... with A. Conger Goodyear, Mrs. Cornelius Newton Bliss, and Mrs. Cornelius J. Sullivan in attendance."

I so much enjoyed the first half of this book, but the second half was disappointing. As Wolfe begins to describe the evolution toward Postmodernism, he seems to invoke the very same scorn he used toward their Modernist forebears. Robert Venturi is all but called a phony; Michael Graves and others are grouped and dismissed as "Silver-White, Silver-Gray," a chromatic reference to the high Modernists as "The White Gods."

Whatever architectural "-isms" happen to be in vogue at any time, what I find most trenchant about Wolfe's writing is that it singles out architects as having more than a whiff of cultural superiority about them. If you doubt that, sit in on a critique at the Harvard Graduate School of Design or MIT's School of Architecture + Planning. Maybe Wolfe's slim volume should be required reading at architecture schools from coast to coast. It's as lively and engaging now as it was 30 years ago.

James McCown is a writer and communications consultant in Somerville, Massachusetts. He also writes for *New England Home* and is architecture editor for *Art New England*.



Design After Decline: How America Rebuilds Shrinking Cities
Brent D. Ryan
University of Pennsylvania Press, 2012
Reviewed by Matthew J. Kiefer

If you didn't know, this is the century of the city. But our giddy urban triumphalism also elides an inconvenient fact: there are

winners and losers. In Boston, we agonize about whether success will erode the city's character and affordability, and about getting anything done with so many entrenched stakeholders. No such worries in Detroit, so cheap and so depopulated it's become a magnet for DIY urban adventurers eager to colonize a vacant lot or an abandoned office building.

In *Design After Decline*, MIT assistant professor Brent Ryan evaluates the effectiveness of urban design in revitalizing shrinking cities in the period after urban renewal. Focusing on Detroit and Philadelphia, his appraisals of projects that worked and many more that didn't are incisive. He doesn't shrink from existential questions: How important is urban design, among the tools at cities' disposal, in addressing decline? Does urban policy work at all in the face of larger economic and demographic forces? He concludes that urban design's influence was weak in the subject cities and suggests how it could be stronger.

Early urban renewal may have treated cities as hapless proving grounds for grand planning experiments, but at least it was ambitious and had a formalist design agenda. Ironically, though its mistakes were being corrected just as federal funding was being withdrawn, urban renewal was supplanted by a "redemption narrative" of social planning and contextual design. We are still in thrall to this narrative today, observes Ryan, even though it often masks timid, developer-driven efforts based on sub-urban vernacular design ideas.

Ryan's account of planning and redevelopment policy since urban renewal is absorbing and insightful. His analysis of why everyday landscape and new urbanist approaches have little to offer shrinking cities is similarly trenchant. He even dares to question the incrementalist legacy of the now-beatified Jane Jacobs. It's required reading to understand the arc of contemporary urban planning practice.

If urban renewal was the overbearing thesis and social planning its feckless antithesis, Ryan's cure for shrinking cities—he calls it "non-reformist reform" since it accepts the constraints of capitalism—aims for synthesis.

It's based on five principles: 1) Palliative planning seeks to alleviate the effects of shrinkage even if it can't be reversed; 2) interventionist policy says, in effect, be bold or you won't have an impact; 3) democratic decision making aims to disperse redevelopment efforts even to places where they won't leverage private investment; 4) projective design replaces blandness with design excellence that overcomes the mistakes of High Modernism; and finally, 5) patchwork urbanism envisions a new pattern of viable neighborhoods in a landscape that may continue to devolve.

Ryan's clear-eyed remedies acknowledge the limits of planning and the need to adjust our physical conception of the city. Maybe urban design won't solve shrinkage, but why not aim high? And why not improve the lives of those who remain through tactical intervention?

You can't blame Ryan for wanting to have it both ways: interventionist and humane. It's largely what urban policymakers try to do now, albeit with insufficient resources and no guiding philosophy. But in favoring both palliation and assertiveness, his program risks being too nuanced to build support for public action, or even to implement consistently. And clearly, the intractable need to relocate residents or withdraw services is not very palliative.

Still, Ryan's prescriptions can help avert a Darwinian future of purposeful intervention in recovering cities and only haphazard efforts in those left stranded by the knowledge economy. Ryan's larger point is that, with the right mix of pragmatism and principle, we can treat the most ailing cities, too.

Matthew J. Kiefer is a land use attorney at Goulston & Storrs. He teaches in the urban planning program at the Harvard Graduate School of Design.



Future Practice: Conversations from the Edge of Architecture
Rory Hyde
Routledge, 2013
Reviewed by Chris Grimley

I sit writing this review as my own curatorial team launches the third iteration of *Design Biennial Boston*, an exhibition with the prime motivation of promoting the various ways we, as young architects, practice—and to lend credence to the idea that there is potency in a contemporary architectural practice. That said, it has been a very long time since I have practiced architecture or have given any agency to the idea that architecture can be a viable business model. As Rory Hyde, the author/curator of *Future Practice* chooses to define what we do, I should be the ideal candidate to draw in to the many webs/networks/systems that are described here.

Throughout my reading, though, I could not help but wonder "Why the book? Why this format?" For such a range of diverse practices, the act of committing what must have been lively conversations to mere paper seems like a missed opportunity. Hyde, an Australian architect now based in Amsterdam, recorded all the interviews, either in person or via Skype, so why the dead-tree medium?

Any editorial process probably left much

of the interview material on the cutting-room floor. It seems that podcasts, Vimeo uploads, and a central Tumblr would be an obvious way to bring this subject to life, especially given the many references to the democracy of the Internet, the open sourcing of architecture, and the crisis of the profession. But the use of these references seems dated, as if they could have been written in the late 1990s, when the last generation of architects was lost, and there was a concerted effort to establish alternative modes of practice. There needs to be an app where active collaboration rather than passive collecting becomes the way that architecture becomes more integral to the masses.

Another recurring question: How many of the firms represented are North American? I raise this because many of the practices that Hyde offers as exemplars are in places where social and exploratory processes are supported, often from governmental agencies. Of the two-and-a-half North American practitioners represented (can the Canadian Bruce Mau be called a US-based designer after his firm's purchase by MDC Partners?), two are Chicago-based, and one is in New York City. Perhaps the sampling could have been larger, looking toward a more crowd-sourced model to hear additional, disparate voices working in cities and communities around the globe.

There are a few gems in the book, from BERG's decidedly playful integration of redundant and advanced technologies; to the strategic design work of the Helsinki Design Lab, which reframes the thought process around decisions through the filter of an architectural education; to London-based Indy Johar's lovely subversion of the typical architecture practice through open-source models. Tellingly, none of these practices is explicitly architectural.

Still, I can't help but think that we have seen this book already, or at least that we have lived through the crisis of making architecture matter many times. With the cyclical nature of economics, architecture is singularly susceptible to crises of recession and market slowdowns. In fact, we've lost a generation of architects through our close acquaintance with financial ebbs and flows.

In an era of superconnectivity and exposure, everyone is in the spotlight to reinvent the what, where, how, and why of practicing architecture. Until we find a way to extricate ourselves from the rhythms of finance—a project much larger than architecture alone can tackle—the future of practice is going to be a constant scramble.

Chris Grimley is a principal at over,under, a design practice in Boston.



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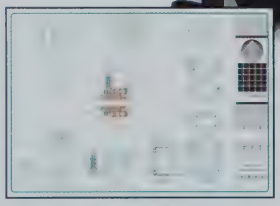
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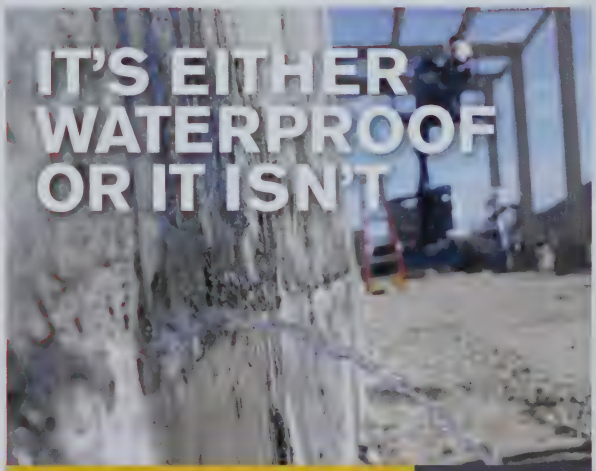
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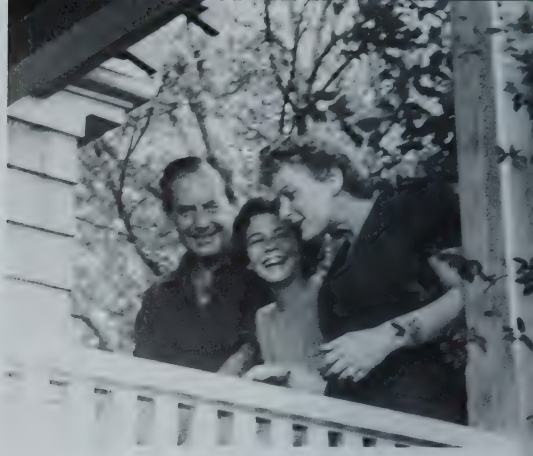
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Ati Gropius Johansen is the daughter of Walter and Ise Gropius. The family moved into the Lincoln house that Gropius and his friend Marcel Breuer designed in 1938, when she was 12.

ABOVE
Walter, Ise, and Ati Gropius at their Lincoln rental house, where they lived during the construction of the Gropius House. Courtesy Historic New England, from the Ati Gropius Johansen collection.

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In 1937, plans for our home were already in the making. Weekends were spent walking over the site, a former apple orchard. We selected the trees that were to be transplanted and discussed, endlessly, how the rooms should be arranged. I was included in the planning and found no difficulty in asking for the moon. Walls of glass, rooms of light—these I already took for granted as the only way to live. But I always wanted more glass and more light than was feasible.

When we moved into the house in the fall of 1938, it was into an existence of such elegance and beauty as I had never known before. Here, I was part of a way of life where attention to the visual was an ethic and had an almost moral meaning. I understood early and instinctively that this was not a focus on superficial appearances, but rather on observing and valuing form as an expression of function and material. It was this principle of design that mattered.

I don't recall my parents ever specifically talking about the Bauhaus, but its ideas and design principles were an automatic and natural part of our daily lives. I absorbed them along with the air I breathed, and I paid little attention to the fact that other households were different. Being different was nothing different.

During the war years, our house became a way station for all our émigré friends just arriving in the States. There was a close inner circle: the artists Herbert Bayer, Josef Albers, Lyonel Feininger, and Xanti Schawinsky, and our neighbor Marcel Breuer. They all called my father "Pius" and my mother "Pia," as they had done at the Bauhaus. German architect Konrad Wachsmann, who had been held in a concentration camp, came and stayed for three years. He delighted Walter with the gift of a Ping-Pong table, installed on the porch, and a source of my most cherished memories.

During these years, the spirit of economizing was much in evidence. Light was religiously turned off; running hot water, frowned upon; heat and fuel, always rationed. When the north wind blew, I can remember my parents huddled in shawls in the living room.

But there were always parties: big New Year's Eve parties in Lincoln and the traditional Fete Charrette balls at the Harvard Graduate School of Design. For the fetes, we all wore costumes, though Walter often appeared in a tuxedo. But Ise was unimaginably beautiful in colorful silks. The modern design philosophy showed in every visual detail. The guests at the New Year's Eve parties, many of them Walter's partners in The Architects Collaborative (TAC), made toasts, sounded gongs, and sang songs. At midnight, each guest poured a ladleful of hot melted lead into a bucket of cold water, producing an elaborate casting to predict that person's upcoming year.

My father was no disciplinarian; he was a gentle and charming man. I was never taken to task for any failure or pressured to perform at school. Instead, there was warmth, attention, and support given to any small project of mine. I believe the architecture students who crowded into his office encountered the same vital responsiveness and enthusiasm for their ideas. Walter was, above all, an educator with a profound commitment to the development of the individual.

After Walter retired from Harvard and joined TAC, life was easier for my parents. There was more money, and there were accolades; prizes and medals became commonplace. Walter and Ise traveled extensively and were greatly enamored with Japan, returning home to install a Japanese garden outside our dining room window.

The 1960s were the last decade of Walter's life, illuminated by gala events and commissions of magnitude and importance. Friends at TAC always celebrated his birthdays, but for his 85th, Harvard Yard around the architecture school was alive with celebrants, balloons, banners, tents, speeches, flowers, and drinks. "Grope for President" appeared on hundreds of buttons pinned on to hundreds of cheering fans.

Walter, deeply touched, said to me, smiling, "The trick is to stay alive long enough. At the end, everyone likes you." ■

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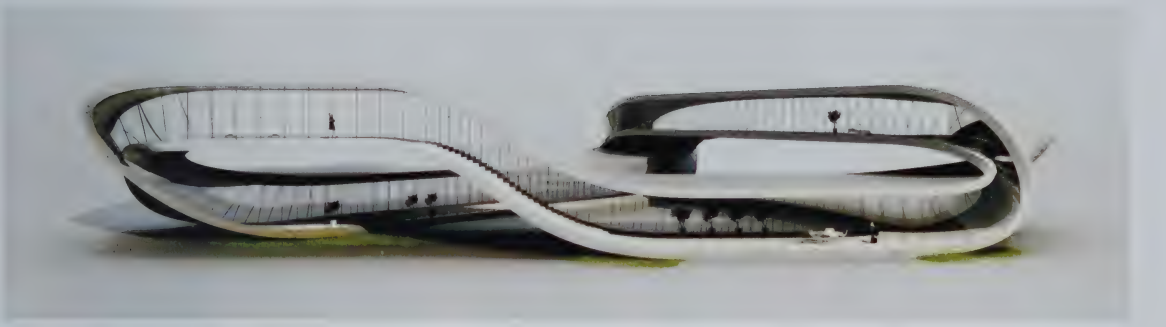
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NEXT

ABOVE
Janjaap Ruijssenaars of Universe Architecture in Amsterdam designed a Mobius strip-shaped Landscape House—in which floors transform into ceilings, inside into outside—to be built using the world's largest 3D printer. The D-Shape printer, invented by Enrico Dini, uses ground-up rock or sand that is hardened by adding a binding agent.

A NOTE ON THE TYPE
Throughout the print issue, we use ZXX, a typeface designed by recent RISD graduate, Sang Mun. Drawing from his experience as a National Security Agency contractor, Mun created six variations of an unscannable typeface to raise awareness of online privacy issues and the ease with which information can be extracted from personal communications.

MORE ONLINE
Read more and download ZXX at z-x-x.org.

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Trending

An insurance-company billboard over the Massachusetts Turnpike promises that "the first person to live to 150 is alive today." This bit of actuarial forecasting is something to ponder while you're hurtling down the highway burning fossil fuels like there's no tomorrow. Who *is* that person who will live to 150? Could it possibly be me? What would I do with all that time? It takes a minute for the hubris to subside and realize that by the laws of probability, the first sesquicentenarian won't even be from the United States.

If demographics is destiny, it seems we have a rendezvous with China and we're already late. Half of all the constructed space in the world over the last 15 years has taken place in China, a country with 170 cities of more than 1 million people and 11 of the 200 tallest skyscrapers on earth. The Chinese government has announced plans to create—from scratch—20 brand-new cities a year for the next 20 years. That's a lot of opportunity.

On the other hand, the growth has been so pell-mell that huge swaths of new development remain eerily vacant, and pollution is so bad in northern China that—according to a new study co-authored by an MIT economist—life expectancy there has been cut by five years. Maybe the first 150-year-old won't be from China after all.

This issue of *ArchitectureBoston* examines what's "Next"—trends in fabrication, materials, economics, and demographics, and how architecture can respond to these changing conditions. Designers are naturals for this kind of future-casting; it's no coincidence that ideas of exploration, opportunity, and the unknown are embedded in the architectural term "prospect."

Stories about the future of the built environment tend to fall into two broad categories: high-tech and low-tech (or maybe "post-tech"). Among the former are those cyberutopians who envision driverless cars with magnets that allow for regulated traffic, bacterial buildings wrapped in bioelectronic envelopes, and shape-shifting homes that change dimensions based on energy or privacy needs. They're the ones making statements such as "Data is the new oil," and overusing the word "lab."

Post-tech futurists are more likely to be promoting societal change: the sharing culture (think Zipcar, Linux, couch-surfing), microunit living, biomimicry, and the reclamation of abandoned spaces. It's a DIY tomorrowland of beekeeping, backyard chickens, mushroom farming, green roofs, and the end of cars—or at least of the combustion engine.

The one thing these seemingly disparate visionaries have in common, of course, is their youth.



PHOTO Conor MacDonald

There is a dark side to design prophecy as well. When November strikes the soul, it's hard to avoid thinking up scenarios of overweening surveillance, environmental collapse, or resource scarcity—a Malthusian dystopia of too many people and not enough water, food, housing, or space.

Luckily, architects are perhaps uniquely situated to address these challenges. Collaboration, problem solving, thinking in three dimensions—this is training for the long view. As Yale professor Michelle Addington says elsewhere in these pages, "The wonderful thing about architecture is [the] propensity to ask, 'Did you check this out? Were you thinking about that?' You begin to think about a problem that has rippling consequences across multiple domains."

The trouble with too much gazing out at the horizon, however, is that it is an acceptable form of procrastination. Change can happen only in the present. If architects and designers want to shape a more sustainable, ethical future, the work is here now. As a wise Cambodian monk once said: "The present is the mother of the future. Take care of the mother, and the mother will take care of her child."

Time to get started. ■

Renée Loth
Editor

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On "American Gropius" (Summer 2013)

The "American Gropius" issue was extraordinary in its content and format. Never before have I seen so many aspects of Walter Gropius' life celebrated in one publication.

We at The Architects Collaborative (TAC) knew Grope as a man of great design insight and a philosopher in his own right—but also as an architect who faced the same design challenges we all struggled with. We honored his past achievements, trusted his judgment, and were more than slightly awed by his presence in the firm. He was our colleague and fellow collaborator, as well as our friend, with shared objectives for modern design.

When I joined TAC, Grope was already in his early 80s, but he made his presence felt. I recall one instance when he questioned the elevations of a hospital project we were doing in Minnesota. He wondered why the building façades were all the same and didn't reflect different solar-orientation requirements. I gave him a rather lame answer, but since that day I have always tried to make my buildings more responsive to climate and natural conditions.

We all cherish the accomplishments of Walter Gropius and are grateful to *ArchitectureBoston* for presenting the man in three dimensions.

PERRY KING NEUBAUER FAIA
TAC president, 1989–93
Cambridge, Massachusetts

The mix of essays in "American Gropius" is well chosen to demystify this central individual, who is often misinterpreted. They usefully open up an examination of the Silver Fox and what he did and did not achieve. Conspicuously absent from the list of topics—Gropius as founder, mentor, scientist, social theorist, teacher, and product designer—is a consideration of Gropius as architect. But the quotation from Sally Harkness, "Everyone wants to think of him as one of the world's great architects; he wasn't. He was one of the world's great philosophers," succinctly sets the record straight. Nevertheless, the exquisite photo essay on the Gropius-chosen objects for his house in Lincoln, and the commentary by the engineers responsible for the restoration of that building, show that the finest example of Gropius' work as an architect in the United States is available to us all, through the stewardship of Historic New England.

KEITH N. MORGAN
Director of Architectural Studies, Boston University
Boston

Near the start of "A Man of Parts," we have the introduction of the term *Modernism* (in the title of a book by professor Anthony Alofsin). Grope had no use for this form of labeling. He happily corrected people who insisted that he taught "the International Style" saying, "The International Style is all of the Greek temples spread throughout the world." Alofsin's simplification is fostered by some strange need to paste one more "-ism" onto the argot of architecture.

My thanks to Bob Campbell, my successor as architecture critic at *The Boston Globe*. His experience at Harvard has given us an understanding of Josep Lluís Sert at a time when the Graduate School of Design was going through perfectly normal changes and modifications. His article does not hide behind those "-isms" that infect discussion of what is a socially, historically, technically, environmentally, and artistically rational process.

David Fixler's pages start out with my standard disqualifier: *semantics*. I recommend [the philosopher] Alfred Korzybski to all who wonder why high-order abstractions like "Modernism" are blissfully impotent. David is correct in challenging the word and suggesting that it can have extended meanings. But I had three courses with GSD dean Joe Hudnut and never once heard him suggest that there was something called "the Modernist Movement."

Grope did not teach "Modern architecture" or "Modernism" or anything but common sense. By asking us first to solve all of the "problems" of the design program, usually with useful options, the concept of "art" can naturally evolve. Although this may ask for program adjustments, it ensures that the higher-order abstractions such as looks, feelings, fears, community, environment, history, and cost can come into play when they will be more productive. He taught us what it was to be an architect, not an "-ist" of any kind.

JOSEPH L. ELDREDGE FAIA
West Tisbury, Massachusetts

Michael Kubo's excellent article, "The Cambridge School," inspired me to recall what made TAC so special in my 20 years with the team.

Personal: TAC was my first large office experience after arriving in the post-Gropius era in 1970. My family and I lived at 60 Brattle Street, so I fell out of bed into the office and lived in the so-called "Architects' Corner" 24 hours a day. Our sons, Chris and Jon, would sometimes drop by to draw on a nearby board, reinforcing John Sheehy's comments about TAC being a "way of life." TAC always encouraged its members to teach when possible, which reinforced the linkage between real-life practice and academia in which TAC was rooted.

Collaboration: There was a great deal of individual identity and competition within the collaborative process, but the final result was a TAC effort. I recall a moment in one of the design reviews when a talented young GSD student was referring to "my idea, my thinking," when suddenly Louis McMillen interjected,

saying, "Son, it is TAC's scheme." The rest of his presentation after this learning moment was a bit more humble.

Learning Lab: Open offices allowed people to interact and even overhear phone conversations. We could hear Howard Elkus talking with the developer on the Copley Place project about the magic of the interactive day-lit public spaces, as well as the functional net rentable spaces; Joe Hoskins engaging Bill LeMessurier about the size of the beam of the 37.5-foot cantilever off of the 3-4-5 triangular bay of our Johns Manville World Headquarters building outside Denver (while we were listening to "Rocky Mountain High" in the background); and the many nearby team meetings talking about energy and accessibility issues. We learned from the dialogue among engineers, clients, and vendors in open, interactive learning. It is quite different from today's plugged-in, quiet offices.

The workday hardly ever ended at 5 PM, as we all worked nights at the Casablanca, Ha'Penny, Harvest, Blue Parrot, and Idler on napkins, tablecloths, and menus, returning to the studios to work until dawn. The drawings finally ended up at Charrette for Bob Beal to oversee the printing, after which we carted them off to Denver, Kuwait, or downtown Boston.

MICHAEL FRANCIS GEBHART FAIA
Michael F. Gebhart Architects
Cambridge, Massachusetts

I worked at The Architects Collaborative as assistant librarian from 1967–68 and saw Gropius almost every day. When I arrived at TAC's new office building on Brattle Street, I did not really know what a special place it was. I became interested in architecture only during my senior year in college and wanted to learn more about it. What an extraordinary way to start!

The opportunity to "work" with Gropius came when TAC was assembling an art installation for one of its office buildings. I was brought along to take notes as Gropius and the architectural staff visited a private collection in the Back Bay. As we entered the very upscale residence, it was Gropius who took my coat. He was a gentleman in the true meaning of the word, a man respectful and considerate of those around him.

He was also very respectful of women. Two of TAC's original seven partners were women, which was highly unusual for the time. I have to thank Gropius for my believing I, too, could be an architect.

NANCY GOODWIN AIA
Finegold Alexander + Associates
Boston

Gordon Bruce's article, "A Total Theory of Design," is a well-constructed summary of his book on Eliot Noyes. His multiple years as a design professional at Noyes' studio in New Canaan, Connecticut, followed by success in his own firm, give him credence. It is fair to say that, besides Harley Earl's orchestration of General Motors' first design departments, Eliot Noyes' leadership at IBM was one of the first formally organized American corporate product-design and branding studios.

While Earl's influence on American design and manufacturing was a combination of a self-taught and incomplete traditional engineering education, Noyes was fortunate to be educated by masters such as Gropius and Marcel Breuer, and was influenced by Harvard's New Bauhaus training. Like Earl, what Noyes did better than others was translate his (often esoteric) academic experience into tangible and successful products that the user can actively engage with.

My enjoyment of Bruce's article leads to this question: How can historical design-management education from the likes of Noyes and Earl be reintroduced to contemporary students of design? From my daily interaction with young designers, it appears their knowledge of design history is limited. Few have any frame of reference further back than Apple and Jonathan Ive/Steve Jobs.

Communicating "how it has been done successfully before" to young professionals is often a grizzly and boring task. But the design- and business-management knowledge in this area is potentially most powerful in the hands of up-and-coming innovators.

We aficionados tend to spend too much time reminiscing on the past. While I am not a formal educator, we need new ways, contemporary and meaningful, to

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communicate this information to those outside the "history buff" circuit. Any takers?

TODD ELLIS
PUMA
Boston

Your "American Gropius" issue not only showed Gropius as an important teacher, as an architect, and as a thinker, but above all as a real person who was also a humanist. The issue should be required reading for all aspiring architects and designers.

Design Research (DR), the retail store founded by Ben Thompson [of TAC], was mentioned. But perhaps it should have gone a step further to give credit to DR's leadership in introducing good design in ordinary products to the whole country—yet another achievement inspired by Walter Gropius.

ARNOLD FRIEDMANN
University of Massachusetts/Amherst
Amherst, Massachusetts

Having spent 25 happy years at The Architects Collaborative, I found all of the "American Gropius" articles to be credible, thoughtful, and profound. The issue reaffirms for me that Walter Gropius wanted to be a citizen of a totally inclusive great society. In his vision, architecture and technology were never the end point: they were the means for a better life for everyone. Did he succeed in his lifetime, and how did it all work out? Perhaps Gropius the philosopher gives us a clue in the following letter he sent to students in 1964:

"For whatever profession, your inner devotion to the tasks you have set yourself must be so deep that you can never be deflected from your aim. However often the thread may be torn out of your hands, you must develop enough patience to wind it up again and again. Act as if you were going to live forever and cast your plans way ahead. By this I mean that you must feel responsible without time limitation, and the consideration whether you may not be around to see the results should never enter your thoughts. If your contribution has been vital, there will always be somebody to pick up where you left off, and that will be your claim to immortality."

JOHN P. SHEEHY FAIA
Architecture International
San Francisco

For more letters, visit architectureboston.com. We want to hear from you. Letters may be sent to letters@architectureboston.com or mailed to *ArchitectureBoston*, 290 Congress Street, Suite 200, Boston, MA 02110. Letters may be edited for clarity and length, and must include your name, address, and daytime telephone number. Length should not exceed 300 words.

Correction: A photograph on page 36 of the "American Gropius" issue carried an inaccurate caption. It should have read "Hartford (Connecticut) Jewish Community Center, corner of the athletic wing."



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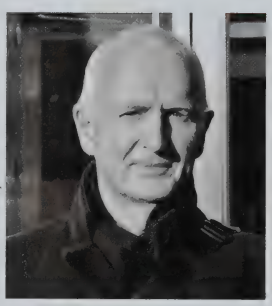


PHOTO Rebecca Murray

Hubert **Murray** FAIA
("Future Stock," page 30)
Hubert Murray FAIA lives in Cambridge and works with Partners HealthCare on its sustainability program. His experience building in Africa and the Middle East has been an inspiration for thinking about a global future with scarce resources.



PHOTO Katie Chen

Ann **Sussman** AIA
("When I'm 84," page 34)
Ann Sussman AIA is a writer, artist, and community organizer. She is the coordinator at ArtScape/Bradford Mill, a studio art and business center in Concord, Massachusetts. She is at work on a book about architecture, planning, and human cognition, co-authored with Justin Hollander, PhD, that will be published next year (Routledge).

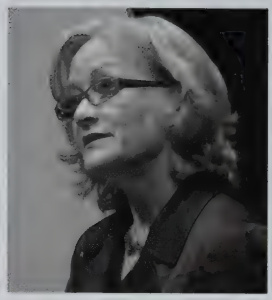


PHOTO Tom Bosschaert

Michelle **Addington**
("Conversation," page 38)
Michelle Addington is a professor of sustainable architectural design at Yale and co-author of *Smart Materials and Technologies: For the Architecture and Design Professions* (Architectural Press). Trained as an architect and engineer, her background includes material and component design at NASA's Goddard Space Flight Center, process design and management at DuPont, and architectural practice.

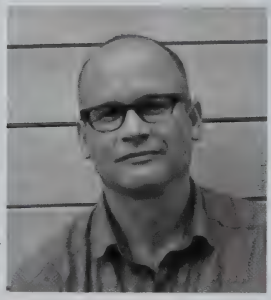


PHOTO Sophie Trumbour

Robert **Trumbour** AIA
("Make the Most of It," page 46)
Robert Trumbour AIA is a founding director of the Boston-based design and research collaborative Artforming and an assistant professor of architecture at Wentworth Institute of Technology. Educated in fine arts and architecture, his current work engages in art, architecture, and landscape through the medium of installation art and emerging technologies.



PHOTO Peter Wiederspahn

Peter **Wiederspahn** AIA
("Grain Elevation," page 50)
Peter Wiederspahn AIA is an associate dean for academic and faculty affairs in the College of Arts, Media and Design at Northeastern University, and an associate professor in the School of Architecture. He is also principal of Wiederspahn Architecture.



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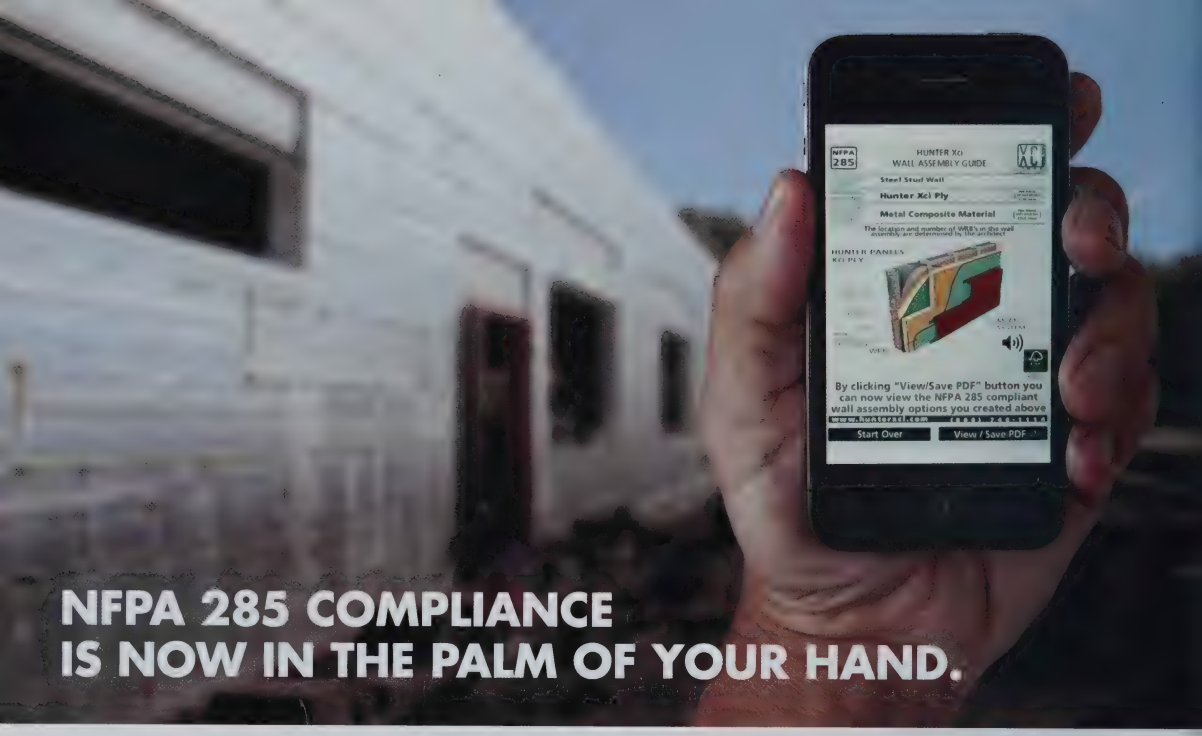
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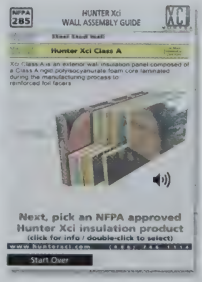
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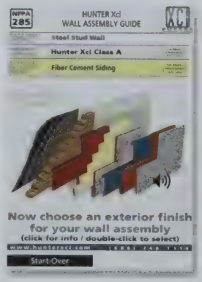
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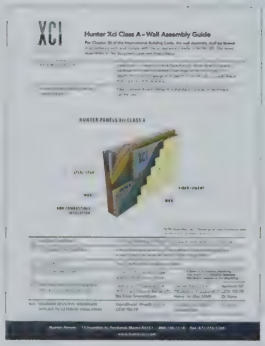
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Unstructured



Toshio Shibata, Constructed Landscapes

Peabody Essex Museum, Salem, Massachusetts
Through February 2, 2014

One of the comments from the guest book at the Toshio Shibata show *Constructed Landscapes* reads, "I couldn't tell what some of the pictures were of, but they were beautiful just the same!" Other similar concerns populate the book, but rather than seeing this as a problem, I see it as the show's strength.

The exhibition comprises 25 of Shibata's photos: 11 black-and-white prints from the late '80s and early '90s and 14 color photographs from the last seven years. All capture the varied landscapes of Japan, with corresponding human-made interventions. What is fascinating about this work is that it neither glorifies dilapidated structures nor edenic nature; instead, it presents a collision of the two with enough space for the viewer to draw his or her own conclusions. The curatorial move of showing these two phases in Shibata's career highlights this aspect of his evolution as an artist. The abstraction in his early work does not obscure the reading; one can understand the subject matter from a distance, and a closer look reveals additional detail.

The photos from the last seven years, on the other hand, operate differently. Many of these resemble collage from a distance. It is only as one draws near that they reveal themselves as landscape photographs. At an arm's length, the subject matter of the piece crystallizes, likely differently for each visitor. In this process, the viewer is forced to work toward an understanding; the "right" reading is not given—because it doesn't exist—and considering the subject, that feels appropriate.

Kyle Barker is studying for his master's in architecture at MIT.

ABOVE
Okutama Town, Nishitama County, Tokyo, 2006. © Toshio Shibata.

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SEEN

Ghost Bike, Cambridge, Massachusetts



ABOVE
Memorial for Martin Sinacore. Photo Aaron Naparstek

MORE ONLINE
ghostbikes.org

It's easy to miss and, if you do happen to notice it, you kind of have to think for a second. Why would anyone lock a bike to a signpost in the middle of a six-lane arterial? But look more closely: The old Schwinn at the intersection of Edwin Land Boulevard and Monsignor O'Brien Highway in Cambridge is painted a spectral white—even the tires, the cables, the seat. A garland of artificial flowers is draped over the handlebars, and a faded Christmas wreath rings the seat post. Blocky black letters across the top tube spell out "Marty Sinacore 1953–2012." Down the seat tube it reads, "Husband, Father, Artist."

The first Ghost Bike appeared in St. Louis, Missouri, in 2003, bearing the message "Cyclist struck here." It was the spontaneous act of a man who had witnessed a fatal bike crash. In the decade since, more than 500 Ghost Bikes have materialized in at least 185 locations around the world. It's a memorial to someone's friend, colleague, or loved one. It is a poignant, haunting reminder of how vulnerable cyclists are on city streets that, for far too long, have been designed almost exclusively for motor vehicles. Most of all, it is a call to action to urban design professionals to do better.

Martin Sinacore, 59, was a scientist, researcher, and amateur musician who lived in Andover and worked in Cambridge. He leaves a wife and two children.

Aaron Naparstek, founder of Streetsblog.org, is based at MIT's Department of Urban Studies and Planning.

GENIUS LOCI

A vast river, stretching in the sun

There is a famous Lakes District in northwest England, frequented by William Wordsworth, Samuel Coleridge, and other famous literati. The Charles River has a Lakes District, too: a modest, beautiful necklace of interlocking ponds and straightaways that flows from Weston, through Newton and Waltham, ending at the Moody Street Dam. It is an improbably delightful part of the world, "as obvious, open, and friendly as a yellow Lab," in the words of environmental writer David Gessner.

I know the District because I've been rowing there for at least a decade. About 50 mornings a year, I push my shell off the dock of the Cygnet Rowing Club underneath the bridge that links Route 30 with Route 128. Then I row downriver, past the Newton Marriott, skirting what remains of Norumbega Park, and enter an open stretch of water that is the theoretical boundary line between Newton (starboard) and Waltham (port). I turn around either below Mount Feake Cemetery in Waltham or in the long straightaway in front of the refurbished Waltham Watch factory.

The Lakes District is my (watery) turf. I know this stretch of river like Carl Yastrzemski knew the Green Monster. I know the rowing is better in the cool spring, before the water chestnuts and lily pads surge up from the river bottom, and before the annoying racing canoes ("Hut! Hut!") and kayakers hit the water. And, *pace* the great British poets, I know our District has history, too. When I steer my bow past Auburndale's Islington peninsula, I catch sight of Waltham's famous Norumbega Tower. (Actually, scullers face backwards, but please bear with me.) The late Harvard chemistry professor Eben Norton Horsford insisted that Norumbega was the Indian word for "Norway," and the 100-foot-tall stone tower marks the spot where Horsford thought Leif Eriksson founded a Viking settlement around AD 100.

You are thinking: Horsford was insane. And when I tell you that he also thought that America was named for Erik the Red, you say, well, that proves it. But he is also the man who invented double-acting baking soda, still used today. Genius or crank? Hard to say.

The Norumbega amusement park, where the Marriott now squats, was once among the most popular destinations in New England. Accessible by tram from Boston, the park featured New England's largest zoo, as well as the legendary Totem Pole Ballroom, where the Dorsey band, Frank Sinatra, Artie Shaw, and Benny Goodman all played.

Weekend recreation meant canoeing, and the park kept an inventory of 5,000 canoes for off-duty lovebirds to paddle around the adjoining lagoons. "In its heyday," declares the Needham Historical Association, the Lakes District "was the most heavily canoed stretch of water on earth."

Canoes still ply the waters, thanks to the state-chartered facility next door to the Marriott. We scullers hate them. We go fast, we go straight, and we like to hog the middle of the river. Which is why we generally row between 5:30 AM and 8 AM, long before the boathouse opens. At those hours, it's just us, the trumpeter swans, great blue herons, bitterns, and egrets at almost every curve, and the occasional muskrat diving away from our flashing oars.

Early one morning, half-asleep, I turned my head and saw what I thought was a small herd of elephants splashing in the river about 10 feet in front of my bow. I screeched to a halt, nautically speaking, just in time to see three deer swimming the river, crossing from Newton over to Brandeis University, on the Waltham shore.

William Wordsworth wrote a lot about his Lakes District, including this fragment from "The Prelude":

> *I dipp'd my oars into the silent Lake,*
> *And, as I rose upon the stroke, my Boat*
> *Went heaving through the water, like a Swan…*

My thoughts exactly.

Alex Beam lives and rows in Newton. *American Crucifixion*, his book about the death of Mormon prophet Joseph Smith, will appear next year.



BELOW
A rower on the Charles River near Newton, Massachusetts, 2008. Photo: Todd Bellemare.

CONSIDERED

Street Seats: Reimagining the Public Bench

Photographs by Conor MacDonald

In September 2012, the Design Museum of Boston issued a challenge to artists and architects worldwide: Create cool, comfortable, sustainable public seating for Boston's Fort Point Channel. Designers from 23 countries submitted 170 entries, from which a panel of judges chose 20 semifinalists. Now visitors, workers, and residents in this thriving neighborhood can rest their weary bones in style—through October 28.

MORE ONLINE
For additional entries, photos, and full project credits, visit architectureboston.com



1



1



3



2



2



3

1. Architecture Atlantic Wharf Entrance Study Series. Materials: Douglas fir beams from Boston warehouses.

2. Bowsprit (Winner). Gillette public dock. Team entry from the Georgia Institute of Technology, Atlanta. Materials: Sustainably harvested teak and steel cantilever.

3. Chroma (People's choice). Harborwalk, adjacent to Gillette public dock. Team entry from Make Stuff Lab, Boston. Materials: Locally sourced hardwood, steel reclaimed from retail fixtures (clothing racks).

Archaeology of the Digital

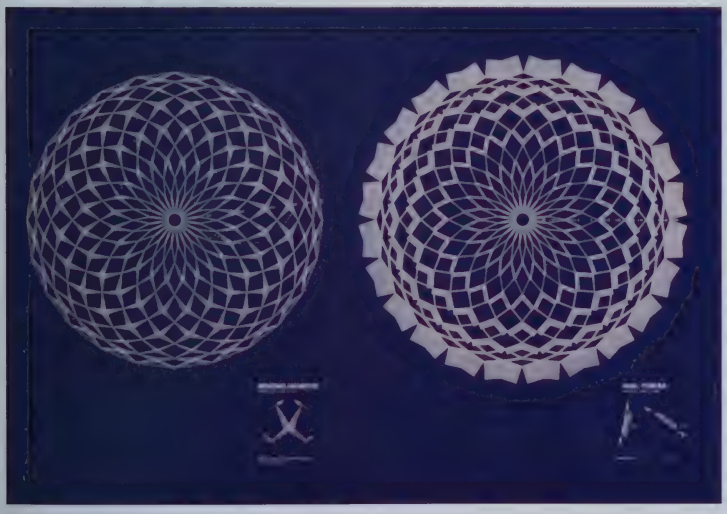
Canadian Centre for Architecture, Montreal. May 7–October 13, 2013

The current reach and transformative power of the digital makes us forget that it grew up in our midst. In architecture, especially, we have become accustomed to thinking of digital technologies as foreign forces that invaded, conquered, and remade the profession in a new image. The exhibition *Archaeology of the Digital* documents four projects of the late '80s and early '90s, each spearheaded by an established architect at the peak of his powers, in which existing technologies were adapted for architectural use.

The exhibition's opening room contains four models and four images, each pair corresponding to a project by one of four architects: Frank Gehry's Lewis Residence; Peter Eisenman's Biocentrum; Chuck Hoberman's Expanding Sphere; and Shoei Yoh's roof structures for Odawara and Galaxy Toyama gymnasiums. Each project corresponds to one room, in which a varied collection of materials documents how the project served as a beachhead whereby its architect entered, explored, and appropriated the digital. The final room of the exhibition contains computer hardware and programming manuals for the software the architects used to create the projects on display. The centre's website makes available video interviews with the curator and the architects.

As the digital came of age, some architects, at least, invaded it proactively, taking what they wanted and modifying it to suit their own requirements. Indeed, the spoils of their adventures constitute the seeds of many of the digital tools commonly used by today's architects, such as Form Z and Digital Project. The exhibition argues, ultimately, that the digital became architectural through the initiative of particular architects, who appropriated it to serve their particular needs.

Jonathan Powers is a PhD candidate in the history and theory of architecture at McGill University.



ABOVE
Diagram for Chuck Hoberman's *Iris Dome*. © Arup.

MORE ONLINE
www.cca.qc.ca



Serpentine Gallery Pavilion

Hyde Park, London. Through October 20, 2013

Sou Fujimoto's pavilion in Kensington Gardens sits—or floats, some have written—a stone's throw from the Albert Memorial. There, Prince Albert is honored for supplying the vision behind the Crystal Palace, the showcase of Victorian industry erected for the Great Exhibition of 1851. Fujimoto's structure of white steel and transparent glass and plastic shares the lightness of a glass house, certainly more than the wood or cork constructions of some years' installations. But this is a glass house stretched, twisted, and turned inside out.

Rather than a clear and open interior from which to admire the park, the central area of the pavilion, filled with white café seating, is overlooked by steeply raked platforms of glass panels fixed here and there on the steel frame. Visitors, encouraged to interact with the structure, step tentatively. Climbing up and down feels risky. The overriding sensation is of being surveyed or surveying, depending on where you're perched. This makes for a space where the more reclusive among us will probably not choose to linger, at least not on a busy weekend. Although the green outside and the audible sounds from the surrounding lawns remind you where you are, there's a disconcerting sense of enclosure or imprisonment—partly due, perhaps, to the invisibility of the way out, hidden by the forest of steel.

Once you're out under the skies again, the stepped seating on the exterior of this exploded, inside-out glass house makes a more comfortable place to enjoy the verdant setting.

Jill Borten is an artist, urbanist, and cyclist living in London.

ABOVE
Serpentine Gallery Pavilion, 2013. Designed by Sou Fujimoto. © 2013 Iwan Baan.

From Obsolescence to Sustainability: A Century of Architectural Change

Wolk Gallery, MIT School of Architecture + Planning, Cambridge, Massachusetts. May 7–August 16, 2013



ABOVE
Perspective sketch of transfer area in the Potteries Thinkbelt proposal, an unrealized project in England, 1966, by Cedric Price. Gelatin silver print of photomontage. Courtesy Canadian Centre for Architecture, Montreal

Today, it seems like common sense to avoid waste. Architects design buildings for energy efficiency. Rather than tear down old structures, we often adapt them for new purposes. The less we burn through the earth's finite resources, the better.

From Obsolescence to Sustainability examines how the pendulum has swung from a 19th-century model for architecture that presumed permanence, through an "out with the old, in with the new" mindset in the mid-20th century, to today's more prudent green approach. The exhibition charts the evolution with a timeline and pointed illustrations of designs by proponents and detractors of obsolescence.

"Architecture is a mediator of much larger economic, political, and social issues," said the show's curator, Daniel A. Abramson, associate professor of art and art history at Tufts University.

Capitalism, with its drive to create money and jobs, supports the obsolescence model. In architecture, the idea arose around 1910, when perfectly sound buildings began to be demolished and replaced by something new, something better. It reached its height in the 1950s and 1960s, when entire neighborhoods, such as Boston's West End, were razed.

But in the 1970s, environmental concerns, such as an energy crisis that hit Americans directly in the wallet, began to move the pendulum away from the zeal for the new. Regular demolition and replacement of buildings didn't only bring fresh and shiny options to the fore, it left trash and debris in its wake. It still does, in places where it continues to reign, such as Beijing and Shanghai, where buildings appear to spring up with breathless haste.

Sustainability looks like a fairly noble alternative today. But Abramson, from his perch as a historian, counsels that the preoccupations of the design community and the public are just as likely to stray from green thinking.

We can't predict what the next throb of change will bring. We can hope, though, that the practice of designing sustainable buildings will become so assimilated into the ethos that architects can set their sights on other goals.

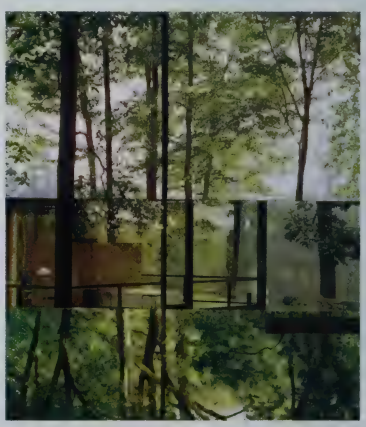
Cate McQuaid is a freelance writer and an art critic for *The Boston Globe*.

Composite Landscapes: Photomontage and Landscape Architecture

Isabella Stewart Gardner Museum, Boston. Through September 2, 2013

Photomontage is a particularly appealing technique for landscape architects, according to Charles Waldheim, the Gardner Museum's consulting curator of landscape, because it suggests growth over time. The overlay of one image on another—whether by hand or digitally, real or surreal—is a study in transformation, and in this exhibition, artist and architect switch roles. Michael van Valkenburgh imagines an experimental fish farm in the Tuileries Garden; Gary Hilderbrand blurs the line between interior and exterior, between roots and branches, in his treatment of Philip Johnson's Glass House. For the Gardner's first-ever exhibition of landscape architecture, the change is welcome.

Renée Loth is editor of *ArchitectureBoston*.



RIGHT
Gary Hilderbrand, *Glass House Reflections II*, 2012. Handcut collage/montage, offset print, handmade paper. Private collection



Covering the Issues

Not your father's almanac... Are you fascinated by the current prominence of urban farming? Do you love rooftop, community, or backyard gardening? Do you secretly harbor dreams of a chicken coop? Well, then, ***Modern Farmer*** is here for you. The luscious inaugural issue (Spring 2013) of this new quarterly includes colorful instructions for how to transform backyards into four-season farms; tips on building a straw bale house; and design highlights on things big and small, including the 55,000-square-foot garden on top of the Boston Design Center. *Modern Farmer*'s attention ranges widely, from organics in China to French hardware stores. With fabulous photography and clever graphics, this design-porn-meets-the-farmers-market is no ye olde *Farmers' Almanac*. Perhaps it's no surprise that half of its advisory board members are architects.

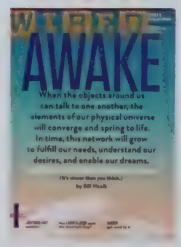
Consumer index... Two relatively recent newsstand editions aim to demystify the residential design and construction process. Design editor Wendy Goodman curates ***New York***'s second annual "Design Hunting" special issue (Summer 2013), a well-photographed, surprisingly humanizing look at a diverse array of New York interiors. Captions offer instruction, not a simple shopping list; if only more house mags would do this. Boston ***Consumers' Checkbook*** takes a more scientific tack. The Spring/Summer 2013 issue walks readers through topics from selecting HVAC equipment and contractors to assessing the need for an arborist, all in down-to-earth text. Working with architects hasn't yet made it into the magazine, but "neighbor-to-neighbor" architect reviews are on the website.

The future's so bright... "Welcome to the Programmable World," writes Bill Wasik in ***Wired***'s cover story (June 2013). Wasik describes life in a not-too-distant future, where "smart" computer sensors not only inhabit your phone or lighting system but also talk to one another. Imagine: When you exit your office, your home heating system automatically cranks up; lawn sprinklers automatically adjust to ground moisture sensors and the weather forecast; your hotel room's lighting, sound, and window shades adjust to your preferences as you enter. The remarkable part, Wasik argues, is not the proliferation of the sensors but the prospect that once there's enough of them, they can be "choreographed… coordinated as if they were a single giant machine," with one system depending on another according to our instructions. If you haven't already begun to reconsider the connection between virtual and physical worlds, the future is now.

If you build it... *ArtForum*'s May 2013 issue is chock-full of architectural interest: architect Richard Meier's review of MoMA's Le Corbusier exhibit; structural engineer Guy Nordenson on renovating the late Donald Judd's SoHo studio for public visiting; professor John McMorrough's review of Zaha Hadid's latest art museum, where no walls are vertical. Perhaps most timeless, though, are three commentaries on the life, work, and influence of Brazilian architect Oscar Niemeyer, who died last year just shy of turning 105. Historian Jean-Louis Cohen offers a sweeping chronology; South American architect Paulo Mendes da Rocha discusses Niemeyer as an inspiring example to younger generations; and artist Josiah McElheny describes the lasting elegance and "urgent possibility" still present in Niemeyer's sculptural work for the capital city of Brasilia and the United Nations.

Right on track... Penn Station is the busiest transit hub in North America and the biggest gateway to New York City, yet one enters "like a rat," as Louis Kahn famously quipped. Radio journalist Robin Young of WBUR's ***Here and Now*** considers whether Penn Station should be restored to its former beauty in a 17-minute audio essay (air date: May 28, 2013; accessible online). The original McKim, Mead & White building, with a soaring, light-filled waiting room, was destroyed in 1963, a great catalyst for the historic preservation movement. Young takes us on a tour of the current station and its more lovely cousin, Grand Central, while discussing the building—what it was, is, and might be—and making a case for why civic space should inspire.









Gretchen Schneider AIA is the executive director of the Community Design Resource Center of Boston.



Beyond the Lawn

Center for Architecture, New York City. May 9, 2013

As ever more people crowd into America's cities, affordable housing has taken on a new urgency. The Center for Architecture's panel discussion, held in conjunction with the spring exhibition *Low Rise High Density*, explored the garden city-inspired designs that have cropped up on the American architectural landscape over the last century.

Low-rise, high-density developments—an early 1900s European import that enjoyed brief popularity in the '60s and '70s as a public-housing alternative to "tower in the park" high-rises—are populous enough to support public transportation yet often low enough that they don't require elevators. They can preserve a suburban feel while housing dozens of people per acre.

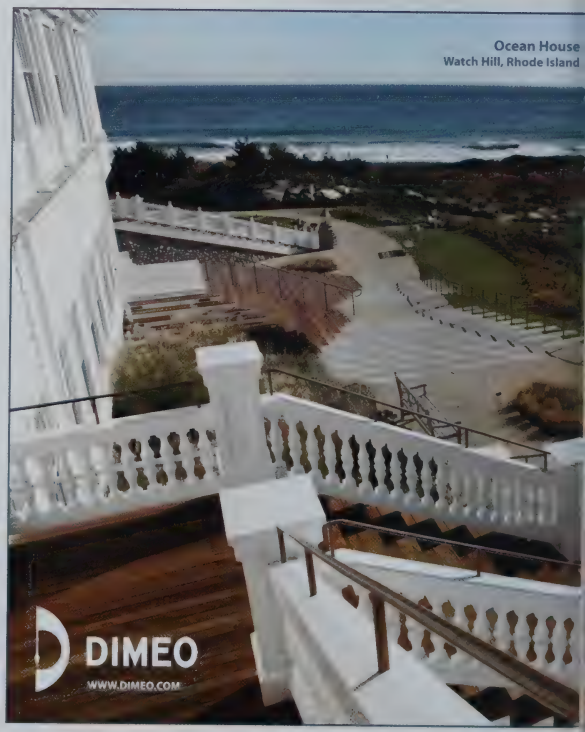
Kate Orff, an assistant professor at Columbia University and founder of the design firm SCAPE, extolled the pleasures of living in Arbor Close, a Queens community built in 1925. Each unit has a small private patio that gives onto a shared interior garden court. She knows her neighbors and can watch her children playing outside from her windows. But a development such as Arbor Close, she said, would be much more difficult to build today.

Michael Pyatok, an architect based in Oakland, California, who has designed many such complexes, suggested a few reasons why, including skyrocketing land prices and, in some areas, zoning that calls for more parking spaces than are necessary or practical. But the chief challenge is charming members of the American public into living cheek-by-jowl with one another. As Matthew Lasner, an assistant professor at Hunter College and author of *High Life: Condo Living in the Suburban Century*, remarked, "For many, a cul-de-sac is about as close as they would like to get to their neighbors." If cities continue to grow as projected, many Americans will have to learn to forego a lawn of one's own.

Sarah L. Courteau is a writer living in the South Bronx. Her work has appeared in *The Oxford American*, *The Wilson Quarterly*, *The American Scholar*, on TNR.com, and elsewhere.

ABOVE
Oxley Woods House, a prefab environmentally sustainable project in Milton Keynes, Buckinghamshire, England, 2007. © Rogers Stirk Harbour + Partners.





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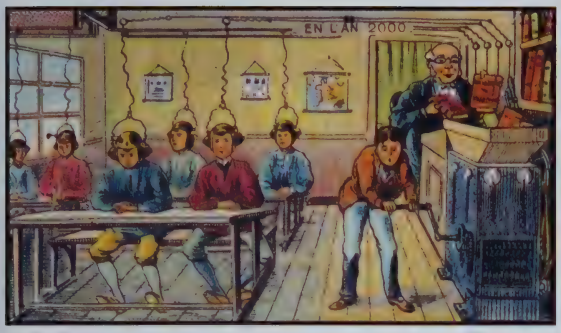


BRYAN BAEUMLER
Craftsman. Contractor.
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WHAT IF?

It's a question that begs a degree of guesswork, opinion, or clairvoyance. If we could look into a crystal ball, what visions of the future might come into focus? How will trends in demographics or materials shape architecture and design? We asked five soothsayers who spend time forecasting in their fields to daydream with us, to envision the horizon, to provide a measure of informed prospect.

En L'An 2000 (In the Year 2000), images by Jean-Marc Côté and other French artists, was issued in France from 1899 to 1910, originally as cards enclosed with cigarette boxes and, later, as postcards that depicted the world of the future. The first ones were produced for the 1900 World Exposition in Paris. The only known set of the postcards was acquired by Isaac Asimov, who featured them in his nonfiction *Futuredays: A Nineteenth-Century Vision of the Year 2000*.



Venturing into the next realm

BY HENRY G. BEER

In *The Black Swan*, Nassim Taleb's seminal work on the unpredictable, the author opines that those things that *are* predictable are of little consequence. They will not be game changers. All one needs to do is pick up a copy of *Popular Science* from the 1950s to see just how unpredictable the future really was/is/will be. The things that shaped our world since were catalyzed by changes that simply could not have been anticipated. The Internet, genetics, nanotechnology, and Angry Birds were all black swans that have profoundly altered the course of our cultures, our institutions, our enterprises, and ourselves. Yet they were at the time of their discovery invisible to all but a few science fiction writers and the odd savant.

There are profound risks inherent in predictive work of any kind. Still, here are some places to look when hunting for "Next."

Next breeds at the edges.
The new often emerges at the confluence or convergence of disciplines, fields of study, or areas of expertise. Innovation occurs where two or more seemingly unrelated events, realities, or phenomena rub up against each other. Velcro was discovered at the intersection of botany, materials science, and the market.

Next rarely occurs in an orderly sequence.
Next is often a radical detour from what to others appeared to be a linear or sequential procession. Next comes as surprise, like the punch line in a joke. The story was going one way and then, *wham*: an utterly unanticipated outcome delights and amazes everyone.

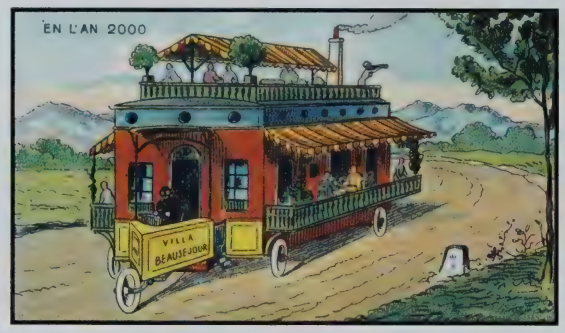
Next speaks to us in qualms and figments.
It is critical to stay in the moment when there's a stone in our shoe about what others are saying about the future or when we are convinced that there must be *something else* around the corner. Listen carefully to that inner voice when there's a fragment of a notion of what might be possible with a different stance or point of view. Like changing the station point in a drawing—it's a whole different prospect. The physicist Richard Feynman's relentless search for a different way of looking at the space shuttle *Challenger* disaster led to an unexpected analysis of the cause, ultimately chasing the problem down to the failure of the craft's lowly O-rings.

Next rewards the biggest prize to the curious.
How can we see around the edges of disparate disciplines if we aren't indefatigably and insatiably inquisitive? Next is what happens after the creativity's over. Linearity is necessary, but only after the nonlinear insight or leap of reason has shocked or stunned even us. Next can occasionally live among the numbers, too, as author Nate Silver has shown us. He writes: "Good innovators typically think very big and they think very small. New ideas are sometimes found in the most granular details of a problem where few others bother to look. And they are sometimes found when you are doing your most abstract and philosophical thinking...."

Next is often disguised as impractical, unreasonable, or stupid.
Most of us see what we want to see, what we've been programmed to see, and what others say *they* are seeing. Confirmation bias blinds us to Next. Next often requires subjecting oneself to ridicule, embarrassment, or worse. Above all, Next takes courage, because in the end, we really can't *know* what's Next. ■

Henry G. Beer is a founding principal of Stantec ViBE, an international Visioning, Branding, Planning, and Experience practice based in Boulder, Colorado. He began his design career at the office of Charles and Ray Eames.

ABOVE
At School, by Villemard, 1910.



Curating new lives and communities

BY SEAN BRENNAN

Sean Brennan is a senior strategist and envisioner at Continuum, a global design and innovation consultancy.

ABOVE
A House Rolling Through the Countryside, by Jean-Marc Côté. 1901.

As a Gen-Yer—that segment of the population more likely to have the Internet in our pockets than cash—I *like* change, collaboration, and creativity. When I try to envision the future, I look for cultural shifts, and this generation, also known as the Millennials, offers the best clues. I think of them not as a demographic but as a mindset. Envisioning is imagination with a clear intent, and Generation Y expects the customization and ease of their digital lives to occur in their physical realm. My job is to build scenarios where culture, technology, and business collide and benefit from one another. In the next decade, three clear trends will affect architecture and design.

Living Smaller

My team at Continuum (we're called NXT) has been talking about a trend we're calling "Living Smaller." We're noticing this change in the aspirations of Gen-Yers, the first generation expected to do worse, financially, than previous ones. They can't afford to live bigger. They take pride in being different from their parents. They don't think they'll be able to afford what they want, so they're scaling back before they even try.

Our culture is beginning to value experiences over material goods. What matters are things we interact with in a meaningful way, every day: electronics, clothes, homes; but we opt for small, with all the upgrades. Technology will allow us to migrate into the digital realm. We spend a lot of time there already, so living without physical manifestations of things is becoming the norm. Look at what happened to DVDs—the same will happen with décor. It's about recognizing what's unnecessary and curating our lives. The same approach will determine with whom we choose to live: We will assemble social networks, buying homes in groups, creating microcommunities.

Climate Control

As the conversation switches from "climate change" to "climate control," there will be architectural tradeoffs to consider. Some of the most desirable properties may become uninsurable. Will we build disposable structures or fortresses against nature? With sea-level rise, geographically favorable locations will shift. People will look for places without forest fires, flooding, or tornadoes. Safety and environmental stability will be key drivers.

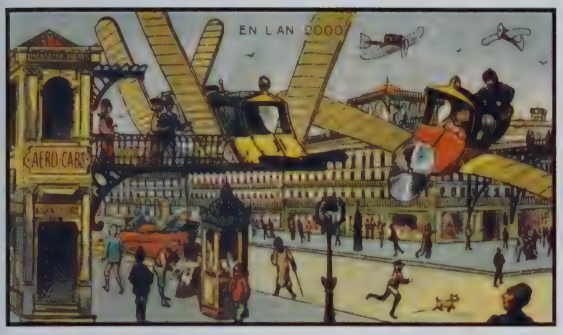
We will use architecture as a way to filter nature, pulling it into our homes rather than walking out into it. We will insist on maintaining our relationship to it—we don't want fake—and drive our architecture to give us the best of nature within our defined spaces.

Tastemakers

Everyone will be a tastemaker in the same way that iPhones and Instagram made everyone a photographer. People will talk about the effort that went into choosing the right materials, colors, and styles for their surroundings. They won't mind that they're confined to a small square—they'll see it as a hive of innovation. They won't even care that they don't own their creations; they already own nothing.

The future of architecture is in developing tools for people to design and curate their space so they can express their creativity. There might be a million options, but there's only one that's right for Generation Y. Middleman platforms such as Pinterest put the tools of designers (mood boards, material samples) into the hands of everyone. You can (virtually) create a collection, squint your eyes, and start seeing the bigger picture while you get set for change.

That's what I like about the process of envisioning: you can begin designing a world people want to live in. Architects should help these tools evolve and create new platforms for collaborating with clients, who can then say, "I made this." ■



Reshaping urban scenarios

BY RAMI el SAMAHY

In 1900, *Ladies Home Journal* sought out experts to predict what "will have been wrought ... before the dawn of 2001." While the projections seemed at the time "strange, almost impossible," many were surprisingly prescient (for example, "photographs will be telegraphed from any distance"). Some were close ("350,000,000 to 500,000,000 people in America"), and others were just plain wrong ("no mosquitoes nor flies").

As an urbanist, I was intrigued most by a forecast predicting the disappearance of vehicles on city streets. "All hurry traffic will be below or high above ground when brought within city limits.... Cities, therefore, will be free from all noises." It is interesting to consider that at the dawn of the 20th century, at least one expert had already presaged Le Corbusier's ideas for the new city, for better and for worse.

I am drawn to this article not so much for what it got right or wrong, but for its willingness to make bold assertions about the future, addressing issues of technology, ecology, and demographics that would undoubtedly affect 20th-century cities. When we consider the future from our vantage point more than a hundred years later, many of the same themes apply, and the impact on cities has only intensified.

It is clear that technological advancement (the growing ubiquity of information technology, the increased reliance on automated processes, the remarkable potentials of nanotechnology) will affect the way we live. But will the cities of the future look much like the ones we live in today, or will these advancements necessitate more substantial alterations? Over the past two decades, technology has fostered profound change but has been absorbed almost seamlessly into the existing city. However, the last 20 years represent the tip of the iceberg: From sentient walls to driverless cars to biomorphic surfaces, our entire infrastructure is set for radical change.

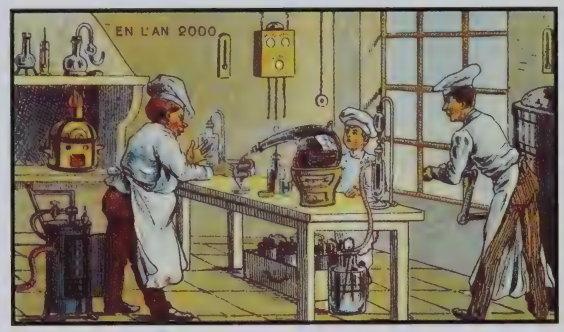
From an ecological point of view, the picture is less rosy. Temperature surges, desertification, sea-level rise, and melting polar caps are all now mainstream predictions. Yet each of these potential disasters offers design possibilities. How (if at all) do we occupy our coastlines? Can we halt the spread of deserts while increasing the land available for agriculture and habitation? Whether adapting to bleak future scenarios or attempting to mitigate them, designers can lead the charge in presenting creative ways forward.

Most statisticians now believe that the world's population will stabilize around 10 billion inhabitants, but they will not be distributed evenly. Many developed cities will likely shrink while the cities of the developing world will grow precipitously, both densifying and sprawling. As a result, a universal solution to the world's urban problems will become even less likely. Neither Andrés Duany's New Urbanism nor Rem Koolhaas' *Generic City* adequately addresses the future realities of the burgeoning cities of the South or the depleting cities of the North.

Rather than relying solely on past precedents or erasing the distinction of location, we need a new methodology that incorporates what is already known and layers it with what is imagined, thereby creating a flexible set of responses to questions that begin with two simple but exciting words: What if? Given the variety of possible futures, and the complexity of the determinants, scenario planning offers designers an opportunity to do what they do best: speculate. Perhaps, if our speculations are bold enough, we might even shape the thinking of the next hundred years. ■

Rami el Samahy is a principal of the interdisciplinary firm over.under and an assistant professor at Carnegie Mellon University.

ABOVE
Aero-Cab Station, by Jean-Marc Côté, 1901.



Sketching delectable visions

BY BARBARA LYNCH

As CEO of BLGruppo, **Barbara Lynch** oversees eight culinary concepts: No. 9 Park, B&G Oysters, The Butcher Shop, Stir, 9 at Home, Drink, Sportello, and Menton

ABOVE
A Model Kitchen, by Jean-Marc Côté, 1901

I detest trends. Since I was young, I've always been interested in doing things differently. Perhaps that's partially due to what some might describe as a rebellious spirit, but I have always found it much more interesting to take a right if everyone else is taking a left. So when it comes to dreaming up culinary concepts and deciding what my next project will be, I have always relied on instinct and challenged myself to think outside the box. I have been told countless times that ideas were too risky or too crazy. When I decided to open Drink, Sportello, and Menton in Fort Point, I heard all of this, but I persevered and trusted my gut. It was exciting and proved to be smart to be a pioneer in the Innovation District—the city's new frontier.

Since I began cooking in my 20s, I have kept countless notebooks that I fill with sketches, quotations, and ideas collected from travels, books, museums, and nature. While I purposely avoid paying attention to what other chefs are doing or what industry publications predict will be the next "hot" thing, I find endless inspiration in beautiful, puzzling, and brilliant things—from the sleek design of a hotel in Berlin to clever food packaging I always seem to find in Milan or Rome. Of course, for every idea that has been pursued and developed, there are probably 50 that stay in the notebook, but it's my free space to dream and wonder "what if." For me, a fully realized—and ultimately successful—concept starts with big dreams, a clear vision, and a good sketch of the experience. The only way to imagine the future and anticipate wants and desires is to have a space to record these ideas and play with them.

At its heart, a dining experience is a very personal thing. We literally nourish guests, and if we do it right, we provide not only incredible food and drink but also comfort; entertainment; education; and, above all, a lovely escape from reality. For this reason, all my concepts have been inspired by something personal: a memory, a craving, a dream. I've always believed that you can walk into a restaurant and immediately know whether or not it has a soul—and the memorable ones always do. I opened B&G Oysters because, like clockwork, I found myself yearning for briny oysters and a crisp Chablis at the end of each long New England winter. The Butcher Shop is my tribute to seemingly disparate memories: the myriad shops throughout Italy I discovered in my early days as a chef, where I could have a glass of wine and read the paper while a butcher sliced an array of salami, prosciutto, and mortadella; my trips to the market with my mother in South Boston as a child, where she always ordered Land O'Lakes cheese sliced "#4" from the butcher, who would hand me an extra slice.

My goal, whether I am conceptualizing a restaurant or a product, is to create something that has never been done before yet is recognizable. Forecasting the future means looking within and sometimes going back in time, reimagining classics, pushing boundaries, asking "what if," and creating a space and an experience both absolutely unique yet comfortingly familiar. ■



Getting out of tomorrow's way

BY CHRIS LUEBKEMAN

I spend half my life traveling, engaging with those who are crafting the physical world as well as with those who are attempting to peer through the haze at the bucking bronco that embodies the forces of change around us. I speak to taxi drivers, waitresses, hotel clerks, teachers, nurses, and students. I seek the insights of policy makers, chief executives, builders, and pretty much any citizen to fully understand the wishes and hopes we, as a global society, have for the built environment.

Although I believe deeply in the potential of digital connectivity, I have yet to find a digital method that matches the power of personal interaction. In my travels, I have the opportunity to look into the eyes of change makers, listening intently to the concerns they voice—and to those things they are not talking about. It is through these conversations, because of these handshakes, that I am able not simply to be in a place but to experience a context. Participation shapes our world.

I am fortunate that Arup has 11,000 passionate individuals spread around the world in almost 150 offices from Brisbane to Boston to Beijing. Each place has a different context that I work hard to understand. I love having breakfast with the 20-year-olds in our offices. Their view of the world often diverges significantly from the views of senior leadership. Their "normal" is quite different from my "normal."

They have never used a Mayline or even seen a Rapidograph. Most assume that if you can model it, you can build it, rather than the inverse. They assume that they will never own a car, will be sharing their "excess capacity," will not keep one job for more than three years. They think nothing of renting their apartment to a complete stranger or doing the reciprocal when they travel. They assume they will need to be able to write code to manipulate digital tools, but most could not sketch out their ideas without pixels as the interface.

I get inspired by their thoughtful concern about the change they see around them, and I look forward with cautious optimism as they confront the mountain of challenges ahead. Pearl S. Buck said, "The young don't know enough to be prudent and therefore they attempt the impossible—and achieve it, generation after generation." We need to get out of their way so that our next generation can indeed do the impossible.

The future is fiction. None of us can foretell the future, yet we are all authors of the story of tomorrow, which we will write together. We often co-create stories of plausibilities—of what could be. In Charles Dickens' *A Christmas Carol*, Ebenezer Scrooge asks the Ghost of Christmas Yet to Come "... are these the shadows of the things that *will* be, or are they shadows of things that *may* be, only?" The ghost is silent. "Men's courses will foreshadow certain ends, to which, if persevered in, they must lead," says Scrooge. "But if the courses be departed from, the ends will change. Say it is thus with what you show me!"

What course are we on? What might cause us to depart from it? What factors are influential enough to change the ends? This is what we study. ■

Chris Luebkeman is director for Foresight and Innovation at Arup, a design and engineering firm with a global staff of 11,000

ABOVE
Advance Sentinel in a Helicopter, by Villemard, 1910

FUTURE STOCK

Half-empty or half-full?
Architecture imagines tomorrow.

by Hubert Murray FAIA

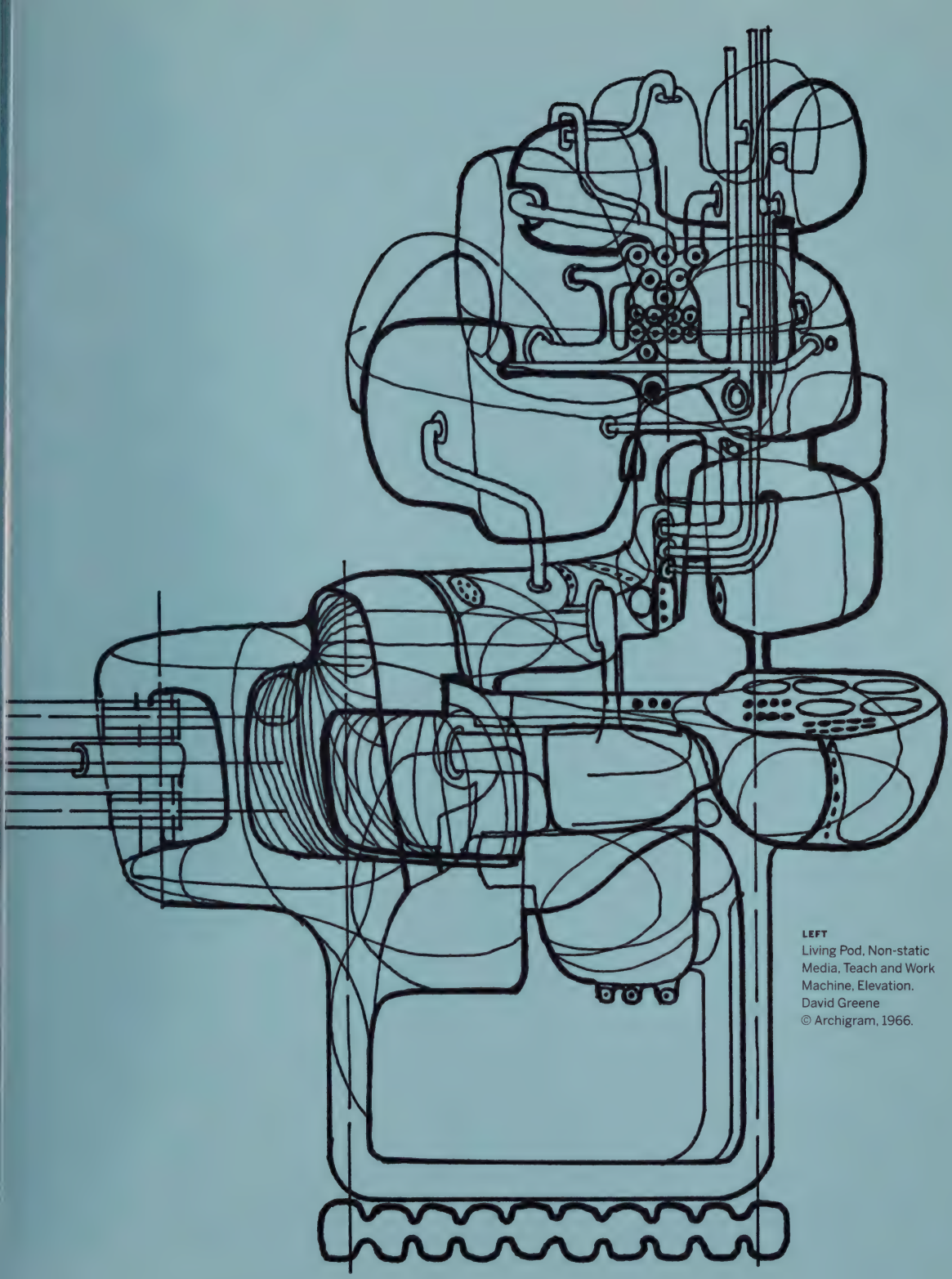


In Edward Bellamy's utopian novel, *Looking Backward: 2000–1887*, the hero falls asleep in Boston in 1887 and wakes up 113 years later to a socialist society where transactions are made through cooperatives with something resembling a credit card, and sermons and music are available through home-installed cable "telephone." Apart from the fact that the concept of debt (and its converse, credit) has been around for 5,000 years, cable arrived back in 1983, and Costco is probably the closest Boston is going to get to socialism in the foreseeable future.

Less optimistically, writing this year in the journal *Daedalus*, climate scientists Naomi Oreskes and Erik Conway imagine "The Collapse of Western Civilization: A View from the Future." It's a look back from the vantage point of the "Second Chinese Republic" in the year 2373, the tercentenary of environmental collapse. Chronicling the failure of Western free market democracies to come to grips with environmental issues, even after 2021 ("the year of perpetual summer"), they record that only centralized, autocratic societies were able to survive.

Philosophers, novelists, and scientists are either optimistic or pessimistic, writing about the future as utopia or dystopia, as an ideal society or as technically predictive, or both. But for architects, the future is an act of creation, the building of new forms both emblematic and instrumental in the wish fulfillment of a new society. In this sense, the work of architects is irrepressibly optimistic.

The mood of futurism has much to do with the mood of the time. In the 19th century, at the peak of the Industrial Revolution in Europe, Jules Verne's fantasies, *20,000 Leagues Under the Sea* and *Journey to the Moon*, were full of sunny technical predictions. His long-term submarine voyages, space travel by rocket, light-propelled spacecraft, lunar landing modules, and space capsule splashdowns were a century before their time. His "phonotelephote" envisioned for 2889, a thousand years into the future, is what we have



LEFT
Living Pod, Non-static Media, Teach and Work Machine, Elevation. David Greene © Archigram, 1966.

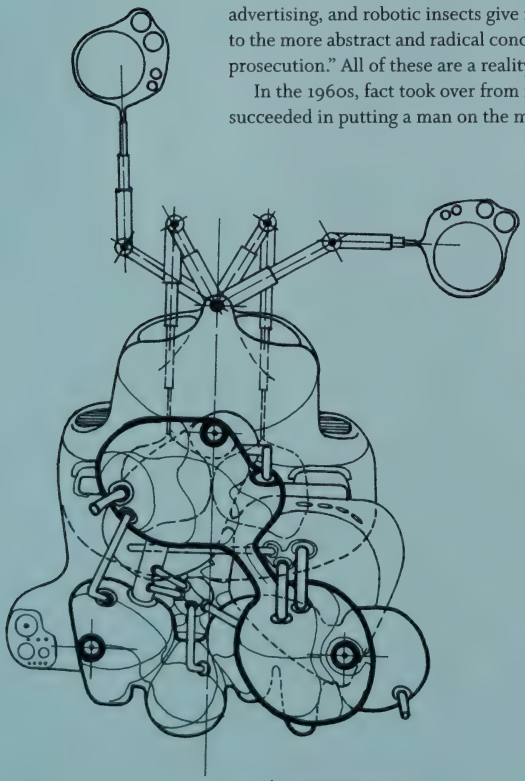
learned to call videoconferencing.

As the industrial ascendancy passed from Europe to the United States, a breath of technical optimism was reflected in popular culture through the space adventures of Buck Rogers. From the vantage of eight decades later, the buildings and equipment appear clunky and unconvincing. The ethical core of the action, however, is only too familiar to a modern reader, driven by a titanic struggle between Caucasian Americans and turbaned foreigners of mutable identity, initially the Han, later Mongols.

Aldous Huxley and George Orwell, writing in the mid-20th century, reflected political angst pre- and post-World War II, offering the alternate dystopias of hedonistic nihilism and authoritarian socialism. Huxley published *Brave New World* in 1932 about a World State flourishing in 2540. The population is bred according to eugenic principles, sex is recreational, collective pleasure is the main principle for living, and the truth gets buried under trivia. Orwell's *1984*, published in 1949, projected a future of the absolutist state, evoking surveillance by "Big Brother" and brainwashing by "thought control," a vision closely resembling Stalin's Soviet Union.

Steven Spielberg's film *Minority Report*, created in 2002 and forecasting the world of 2054, synthesizes Huxley's and Orwell's dystopian visions. The technologies of multitouch interfaces, retina scanners, anticipatory advertising, and robotic insects give material credibility to the more abstract and radical concept of "preemptive prosecution." All of these are a reality in 2013.

In the 1960s, fact took over from fiction as America succeeded in putting a man on the moon. The Arthur C. Clarke/Stanley Kubrick co-production of *2001: A Space Odyssey* leapfrogged over the present with breathtaking movie technology, a scientifically sound rendition of space travel, and prescient themes of the relationship of man and machine, the role of evolution, and an existential questioning of our human destiny.



Where does architecture come into this?

The high-tech era of modern architecture owes much of its provenance to the aesthetics of American technology, if not to the actual content. Buckminster Fuller, the quintessential visionary, was an evangelist for prefabricated monocoque construction in the 1930s, a prophet of lightweight, thin-skinned environmental enclosure. The Dymaxion House (1933) was the manifesto, and Spaceship Earth at Epcot (1982) the apotheosis of the optimistic future enshrined.

Archigram, a group of London architects influenced by Fuller—with enthusiasm for the US space program, North Sea oil rigs, and Carnaby Street—were the futurists of liberated individualism. David Greene's *Living Pod* (1966) and *Logplug* (1969) and Mike Webb's *Cushicle* (1967), inspired by lunar modules, were prefigurative forms of people working at their laptops, answering phones, and tweeting in the coffeehouse, up a mountain, or on the beach. Peter Cook's *Plug-In City* and Ron Herron's *Walking City* (both 1964) were precursors of the globalized, wired, 24-hour environment realized over the next two decades by Renzo Piano and Richard Rogers (jointly and separately) in the Centre Beaubourg in Paris (1972); the Lloyd's insurance building in London (1986); and the dynamic, hydraulically adjusted, mile-long Kansai International Airport (1994) in Japan.

Although the technical futurists of the long 20th century have been both optimistic and, for the most part, apolitical, there is also a tradition of social futurism framing a political vision predicated on physical form. The Italian Futurists and the Russian Constructivists at the beginning of the 20th century both employed radical architectural form to uphold and celebrate revolutionary content. Antonio Sant'Elia's *casa gradinate* for the *Città Nuova* of 1914 was part of the vision for "Milan in the year 2000," a militant break with historicism. Similarly, Constantin Melnikov's 1929 Rusakov Club in Moscow was a thrust into the future, the "social condenser" a symbol of the new collectivist society. Although architecture and infrastructure became a futuristic expression for both (lots of concrete and steel), they diverged in political direction, with the Italians leading toward technofascism and the Russians envisioning the supremacy of the state in Lenin's vision for a communist future through soviet power and electrification.

Architectural utopias have most often been



expressed in the form of housing. Charles Fourier's early-19th-century vision for a community of 1,620 people (a finely calculated number) living together was a program for establishing a harmonic relationship between town and country, the "unity of head and hand," and a vision for the liberation of women. The physical manifestation of this concept was the Phalanstery, a vast superblock that combined living, learning, working, and recreation, as well as social and economic exchange. The full realization of Fourier's dream is embodied in Le Corbusier's *Unité d'Habitation* in Marseilles, completed in 1952, almost 130 years after the original articulation of the concept for communal living on an urban scale.

In 1972, the global think tank Club of Rome published *Limits to Growth*, accurately depicting many of the stresses the world is confronting today in population growth, industrialization, resource depletion, environmental pollution, and food production. The only missing ingredient from this dire mix was a forecast of global warming and its consequences.

Faced with the bleak futurism of novelists and scientists alike and its congruence with reality, the strong tradition of architectural utopianism is needed now more than ever, albeit in more self-reflective forms. Those architects who have embraced the challenge of integrating social and environmental sustainability demonstrate a crucial role that architects can play in creating a viable future. Neither constrained by a single utopian vision nor imprisoned by style, the range of building types and scales in contemporary practice suggests a pluralistic, viable future not just for an elite or for advanced industrial countries, but for a world population.

L'Oeuf Architects in Montreal, for example, show that it is possible to retrofit existing public housing into energy-efficient, low-carbon, attractive neighborhoods. The MASS Design Group has brought enormous design intelligence to the development of low-cost, healthy hospitals in Rwanda. And on an urban scale, the City of Stockholm has revitalized its old waterfront with a zero-carbon city expansion for 35,000 people.

These examples illustrate that the future lies not in the single pursuit of technological invention nor in social utopianism nor yet in a hermetic vision of environmental purity but in a synthesis of these visions for which design is the critical integrating catalyst. More than most other professionals, architects are trained to think holistically and imaginatively, every act of design essentially a mental leap into the future.

Is the future to be business as usual, or do we build a tomorrow in which the planet and its inhabitants stand a chance of survival?

ABOVE
Living Pod, Sketch Section, David Greene
© Archigram, 1966.

LEFT
Living Pod, Non-static Food Dispenser, Plan. David Greene
© Archigram, 1966.



WHEN I'M

Designers prepare for the silver tsunami

BY ANN SUSSMAN AIA

ABOVE
The Age Gain Now Empathy System (AGNES) suit, developed by and photographed in MIT's AgeLab, is worn by designers, engineers, architects, and others to understand the physical challenges associated with aging. The suit approximates the dexterity of a person in his or her mid-70s. Photo: Justin Fantl.

If you are building a new home, advises developer Dan Gainsboro of Concord, Massachusetts, design the closets so they stack floor-to-floor. That way, they can easily convert into an elevator shaft. Think elevators are for high-rises? Think again. Elevators are coming to a single-family home near you—perhaps your own—sooner than you think.

It's just one of the many shifts transforming architecture in the wake of the "gray wave," the maturation of the baby boom generation. Boomers (the 77 million Americans born between 1946 and 1964) have been defying cultural norms for the past 50 years. They are the "do your own thing" generation, keen on ignoring old rules and imagining new ones. They famously pushed for civil rights; feminism; environmentalism; and now, moving into their 50s and beyond, they are changing the physical world as well.

The first baby boomer turned 65 on January 1, 2011. Today an American turns 50 every seven seconds. By 2015, the 50-and-older age group will represent 45 percent of the US population, according to the AARP. Add to this the fact that older Americans control more than 75 percent of the nation's wealth, and the recipe for unprecedented change is clear.

"It's the silver tsunami," said Sigrid Miller Pollin, professor of architecture and design at the University of Massachusetts/Amherst. "There's this huge age wave of baby boomers, and their thoughts and demands are different from the previous generations."

Elder-care providers debate whether architects, and society at large, are at all prepared for the magnitude of the shift. With advances in healthcare and preventative



treatments, "we've added nearly three decades to the human life span," said Len Fishman, former head of Hebrew SeniorLife, a Harvard-affiliated senior health and living nonprofit. "Our thinking is trailing the demographic phenomenon, [which] is only now being experienced and is impossible to overstate." It's a situation vastly different from what humanity has ever experienced, he adds, one where old ideas about retirement won't hold.

Just how the difference will manifest is unfolding. Baby boomers seem to be feeling their way, making things up as they go. For many, imagining getting old at all is best avoided. As a group, they tend to harbor a lot of fear and denial about their eventual physical decline, said Angelina Gennis, research assistant at MIT's AgeLab, which studies how new technologies can maintain quality of life in an elderly population. When it comes to housing choices, "boomers don't want to be treated differently because they're aging," she said. She sees them as shunning anything with "implications that they might be limited some day."

One thing that is clear is that women are prime movers in charting these new arrangements, said Martin Siefering, a senior-living specialist and principal at Perkins Eastman. "They're better-educated, demanding consumers." The fact that more baby-boomer women have a college education than ever before in history fuels the trend, as does the fact that more women have worked outside the home, he said. And women outlive men, by an average of five years. But boomers of either gender share a general unwillingness to follow the rules. "They question



HOME IS WHERE THE SMART IS

Kathleen Lugosch, architecture professor at the University of Massachusetts/Amherst and principal of Lugosch Architect, has developed these "Seven Simple Principles for Aging in Place":

1) Look to universal design standards, particularly in kitchen and bath design and door and faucet handles

2) Have a full bedroom and bathroom on the first floor

3) Have a "slow" stair, with an ample 7-inch riser for an 11-inch tread

4) Have connection to the outdoors: windows, porches, three-season rooms

5) Design for daylighting; make sure there is ample task lighting, too

6) Think about passive and active energy systems to minimize energy costs

7) Use low-maintenance materials

everything, every step along the way," Siefering said.

For all the unruliness, key trends emerge. For one, baby boomers tend not to want to copy their parents. "Their predecessors moved into senior centers, but this generation is choosing to stay home," said Gennis. That's something Gainsboro, the Concord developer, sees, too. He said it contributed to the success of Riverwalk, the 13-unit cottage community he built in West Concord, which broke ground in 2010 and recently sold out. Ten of the 13 new owners are baby boomers. "These are people interested in being part of a mixed-age community who clearly didn't want to be in an age-restricted setting," he said.

Second, baby boomers prize efficiency. At Riverwalk, houses are 1,300 to 1,700 square feet, some 30 percent smaller than a typical American house. Cottages have an open first-floor plan, long views, lots of windows, and nine-foot ceilings, which make them seem larger. All have living and dining rooms, a kitchen, a master bedroom, and a bath on the first floor.

Third, boomers seek flexibility. Pollin, who also runs Miller Pollin Architecture in Amherst, sees boomers planning for "aging in place" and designing homes that allow them to do so. This could mean "building a core or small unit with stairs and adding on to it with a pod or modular unit or several units," she said, and lead to radical alternatives such as removing pods when children leave. It is these concepts students in her UMass studios explore.

Although many boomers struggle to imagine their future mobility—or immobility—the interest in installing home elevators is growing, abetted by advances in lift technology. In Newton and Brookline, where high land costs make designing a one-story home prohibitive, rehabs now frequently call for elevators, said Michael Kim, principal of Michael Kim Associates in Brookline. He routinely specifies them in house renovations there. These additions can cost $25,000 to $35,000, so obviously they are not a solution for everyone.

On the other hand, boomers may reject elevators entirely, Pollin said. "Having everything on one floor is more comfortable because you don't have to rely on an electrical mechanism," she said, which could break down and, at a minimum, require generator backup.

Universal design, once treated as a subcategory of design for the disabled, is also gaining ground, pushed by the boomer bulge. House plans will more likely accommodate the five-foot turning radius of a wheelchair in the future, for example, and have entranceways built with low thresholds, wide doors, and door-lever hardware instead of knobs.

The need to recognize that functional limitation is a fact of life informs the work of the Institute for Human Centered Design, a nonprofit in Boston that promotes universal design. "Our context is disabling," said Valerie Fletcher, executive director, who said the challenge today is to "create environments where people can perform at their best from 20 to 80 years old."

This means architects need to pay much more attention to acoustics and lighting in workplaces and at home. "We need twice as much lighting at age 60 as at 40 to accomplish the same tasks," Fletcher said, adding that natural light plays a key role in improving functional and intellectual abilities. "Architects really need to think about how to make our brains work better," she advised, "because none of us are going to retire."

Many of the changes in house design and programming are just common sense. "An architect can go from ignorance to effective design for seniors without tremendous effort," Fishman said. There's a lot of low-hanging fruit." What's harder is coming to grips with the idea that the typical American three- or four-bedroom single-family house may be nearing the end of its useful life. Fishman sees our current atomized living arrangement of one house per family as "a little blip in human history." He recalls how multiple generations frequently lived under one roof or took in boarders during World War II; the Depression; and, indeed, throughout most of human history. "Multigenerational living is more cost-effective and socially enriching," he said, predicting its return in the near future.

The typical American three- or four-bedroom single-family house may be nearing the end of its useful life.

He is not alone. Anticipating an extended family arrangement informs the work of Ray Mann of RK Studio Architecture in Amherst, which focuses on the needs of the "sandwich" generation—baby boomers who may care for both their kids and their parents at the same time. Mann designs houses with two separate entryways and two separate patios so that two generations can enjoy privacy while still sharing spaces, including "a solar courtyard," which brings greenery and joy into the bleakness of winter. It all fits into 2,000 square feet (excluding the sun space) and provides office space for work at home as well as three bedrooms, she said. For this experiment in multigenerational living, the architect didn't need to go far: Her first case study was her own house, built to include her parents.

Baby boomers, social agitators to the end, are changing the built world, too. They wouldn't have it any other way. ■

LEFT
Photo: CJ Gunther.

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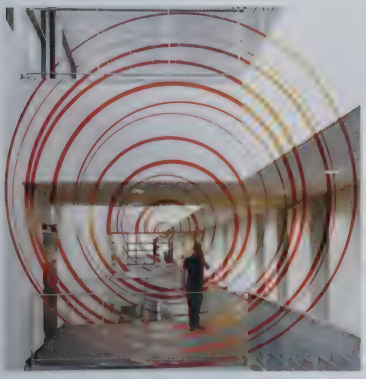
THE HEAT OF THE MOMENT

Lian Chikako Chang speaks with Michelle Addington

In the homes and offices of the future, will our laptops keep us warm? Michelle Addington, a professor of sustainable architectural design at Yale University, thinks so. Addington has written extensively on lighting, materials, and environmental systems and teaches a cross-disciplinary undergraduate course at Yale called "Environment, Energy, Building." In an interview in her New Haven home with Lian Chikako Chang, a recent graduate of the Harvard Graduate School of Design, Addington exhorts architects to think and design more integratively in the future, so that they go beyond serving single client needs to addressing the challenges of the population at large.



RIGHT
Two views of *Dix-sept cercles oranges excentriques* at the European Centre of Ceramics in Limoges, France. 2010



Installations by Felice Varini

Swiss artist Felice Varini uses projector-stencil techniques to create geometric paintings in urban spaces. These anamorphic, or intentionally distorted, paintings are characterized by one vantage point from which the viewer can see an undistorted image, usually based on a simple geometric shape such as a circle, square, or line. From anywhere else, the viewer sees only shapes distorted beyond recognition. Michelle Addington cites Varini's work as an example of how the effects and boundaries that we perceive are not always located on physical surfaces: what you see is not necessarily what you get. Architecturally, Varini's work suggests a different way to think about the immaterial effects of heat and light in terms of a building envelope's performance. Photographs by André Morin









LEFT TO RIGHT
Two views of *Trois rectangles cacographiques* at the Whanki Museum, Seoul, South Korea, 2006.

Tous pour l'angle, rouge at Galerie Xippas, Athens, Greece, 2004.

De l'angle au rectangle at the Bourdelle Museum, Paris, 2006.

Lian Chang: I just completed a case study where I interviewed architectural consultants and explored their roles in practice today. Do you think that the division of labor—the idea that every improvement has to be an improved specification—is influenced by the way buildings get delivered? That an architect will have consultants and each one will advise on, provide, or fabricate a certain aspect of the building? Perhaps that makes it hard for the façade consultant, for example, to think that anything other than what they provide is important?

Michelle Addington: The whole reason I teach this class at Yale is because it's open to the entire university, so I have undergrads from economics, physics, engineering, literature. I'm trying to get them away from thinking about things only from the perspective of their own fields. Probably the largest percentage is coming from physics and engineering, students who think, "If I could just get people to make their houses more insulated, I'd make a great contribution." The whole point of this class is to realize that designing a building is a multi-domain problem. How does one operate in all these different types of domains?

That's where I think architecture has an advantage over every other profession. We don't see just a problem and solution; we understand there is context, influence, consequence, cause that might come from different places. We learn this when we're dealing with the multiple subjects that we integrate as we study architecture, not only from the fields we integrate in a building but also from history, theory, law. You begin to think about a problem that has rippling consequences across multiple domains.

I've been looking into cookstoves, one of the biggest environmental problems in the world. Each person who's involved has worked on solving a piece: financing structure; cleanliness; how they're distributed. The most efficient and cheapest cookstoves are made from aluminum, [but] aluminum has the highest embodied energy, and much of its production is coming out of the Middle East. So you also end up with geopolitics coming into play.

The wonderful thing about architecture is [the] propensity to ask, Did you check this out? Were you thinking about that? What about cultural desires, how families normally cook? Is there an issue of security? These are the things architects can uniquely think about, and do.

Lian Chang: What do you think about practices like MASS Design Group, which started out designing a hospital for tuberculosis patients in Rwanda and now a lot of its work is consulting for governments in terms of how should they think about infrastructure, problems that we can frame as design problems? Should architects insert themselves into policy conversations?

Michelle Addington: I think they should, and I think they're making a valuable contribution.

Lian Chang: How can an architect explain to the





public this way of thinking and this approach, which is different from the traditional role of being a person who makes a certain type of building or who designs in a certain style?

Michelle Addington: I wrestle with the same thing. When people ask me what I do, I say I teach architecture, and they ask, "Do you teach houses or commercial buildings?" There is that assumption that it's all typological.

At the December 2010 climate conference in Cancún [Mexico], I put together one of the 200-plus side events that took place. I was startled to learn that only three dealt with buildings, and by the number of people who said, "Why would an architect be here?" Yet I saw slide after slide about the impact of buildings. I was surprised to keep seeing that everyone believed buildings to be low-hanging fruit, that the Number 1 thing we can do to combat climate change is to add more insulation. Number 1! I spent a great deal of time talking to policy leaders, saying that's the worst possible thing you can be doing for the future.

New building codes in Florida require levels of insulation we required in Maine 10 or 15 years ago. The assumption is that the most important thing is to protect conditioned air, not understanding how buildings produce, release, and dump heat. Incredible amounts of insulation are certainly the best way to protect a homogeneous environment. [But] it's the worst possible way to think about how one deals with heat loads.

Lian Chang: What vernacular features of a typical New England house might have dealt with heat load problems [years ago]?

Michelle Addington: The concept of comfort as we know it is very 20th century. Living as someone did in the 19th century is not going to fit any kind of norm that even I, as someone who's doing my best to figure out how to get around those things, would accept.

Lian Chang: It would be too cold in the winter?

Michelle Addington: Too cold *and* too hot. One of the reasons we're in our current quagmire is the development in the latter half of the 19th century of dilution-based environmental systems, the idea that heat and moisture are diluted by ventilation air. We added the cooling coil onto that in the 20th century, but the basic concept of dilution—taking what you have and mixing it with a different air stream—was so far ahead of its time that it became embedded in place. We think about theories of physics and technologies: the theories themselves are stable and last for centuries, whereas the technologies emerge, evolve, then become obsolete in rapid cycles.

Architecture is so far behind on thinking about bodily senses. I find this ironic; supposedly everything we do is about the physical environment we create, particularly the environment we see, yet we don't understand how we see. We certainly don't pay much attention to how we actually feel. We



cede responsibility for that to some type of neutral environment, without understanding the interaction of our body with that environment.

Lian Chang: So it's not about giving certain environmental conditions to the building as a whole because the building doesn't care; it's *we* who care?

Michelle Addington: Yes; the Number 1 exchange for the body in a building—and every student learns this and somehow it just disappears—is radiant temperature. One of the things I've proposed is that we can create a baseline level of dilution that deals with the environmental loading of the exterior.

Lian Chang: So it doesn't feel stuffy?

Michelle Addington: You have to deal with moisture. You have to have a certain amount of fresh air and actually allow your building to breathe. I would never live in an insulated house. This house isn't, which is one reason I chose it. I replaced certain windows but … there's a leaky, or partially open, window in every room, all year 'round.

Lian Chang: And that gives you enough ventilation?

Michelle Addington: Yes. Once you have that as a baseline, there's always a low-level heat, so I keep the house heated to 50 degrees Fahrenheit. Everything else is done by radiant temperature, by understanding the positioning of my body near what a cold sink would be—a cold sink being a window. It's a question of moving your body around in relationship to those things.

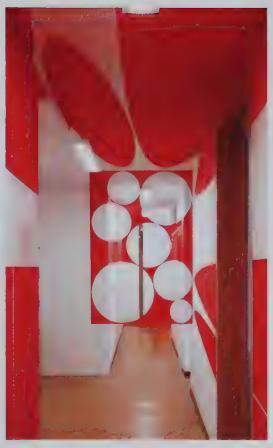
Lian Chang: Not being too close to it …

Michelle Addington: In the wintertime. I put up a shade system—just a regular paper shade; it doesn't have to be insulated. A piece of paper would stop losing radiant heat. One can do it vernacularly by understanding … that the important part to position is actually this part [*gestures*].

Lian Chang: That's the neck and chest?

Michelle Addington: As long as that's somewhere near a heat source. If you have an LED television, that's actually a fantastic radiant heat source.







Lian Chang: Laptops and iPads?

Michelle Addington: Great stuff. You start paying attention to how these things work in relationship to one another, where you should position yourself so that your body is in proximity to the hottest part of it. Or vice versa. Think how we would design buildings for this. It's not a question of moving someone around the building, but of understanding where vertical surfaces are. We have chilled ceilings, we have heated floors, but those are not radiant systems. Those end up operating by convection and create incredibly homogeneous environments. If I want to deal with the body, I'd actually have a chilled vertical panel or a small heated surface.

Lian Chang: I'm envisioning a cold winter night in a cave and people sitting around a campfire.

Michelle Addington: There are times when you just want to lay by the window and feel the heat of the sun on your body. There are times when you just want to be in a corner. There are times when you want to feel a fresh breeze. You want to have those opportunities, but so much of our building has been designed to try to control that homogeneous environment. People are unwanted perturbations.

Lian Chang: We create heat.

Michelle Addington: Not only do we create heat, but we don't behave properly. Rudolph Hall [at Yale] underwent an extensive renovation five years ago. They eliminated operable windows because they were putting in a state-of-the-art HVAC system but couldn't afford override controls to prevent people from opening windows. There's this idea that to make the system work properly, you have to control people's behavior, that people are the problem as to why buildings don't perform better. Instead of trying to deal with smart glazing, why not invent one tiny panel where the smartness would be in how it directs heat radiation at neck level? That would be discrete and strategic.

Lian Chang: And that might create different experiences within a building.

Michelle Addington: I like to think of it as creating sensual pleasure. What the body needs for health is minimal: we need a certain amount of fresh air; temperatures not too hot or below freezing. So the rest of it is in dealing with definitions of comfort and determinations of thermal pleasure. Our entire HVAC systems are designed as if both are one and the same, but comfort is actually very local in terms of parts of the body, whereas health is the part that depends upon dilution. You need the dilution for health, but you don't need it for comfort, so separate the two.

Lian Chang: You once wrote in *Harvard Design Magazine* about not designing buildings as objects but just designing "so an intelligent environment might no longer be an environment. It might be a set of autonomous and transient and discrete responses that will happen once and disappear." That's a beautiful idea, but it's also hard to understand what that might be. Is it reasonable to infer that we may not have buildings as we know them in 2050?

Michelle Addington: I'm wrestling with two ways of thinking about it. One is pushing people who are working in advanced technologies to step beyond what they're doing and try to imagine this future. But since I've gone to Yale, the majority of my work has been with developing countries, so I've been looking at it from a different standpoint: I'm thinking much more

LEFT TO RIGHT
Two views of *Les disques évidés par l'hexagone, le pentagone et le trapèze* at the Collège Jean Lurçat, Saint-Denis, France, 2013.

Two views of *Tra il pieno e il vuoto* at the Varini & Calderoni Oncology Center in Lugano, Switzerland, 2003.







LEFT TO RIGHT
Two views of *Ellipse rouge en diagonale pour deux colonnes* in Wolfsberg, Ermatingen, Switzerland. 1997

Two views of *Deux cercles concentriques dans le couloir, rouge n°1* in Galerie Yvon Lambert, Paris, 1992.

about dealing with the circumstances in which half the world's population find themselves. Whereas for years I was working on the smartest way to use advanced technologies very discretely, now I'm looking at the dumbest, cheapest infrastructure one can create that would provide for a large variety of needs, where money is and who can invest.

We have a situation in Bangalore [India] where the energy use is going up an astonishing 10 percent a year. But Bangalore is also where you've got 200 transnational software companies coming in, all of which are looking for uninterruptible power and are willing to pay for it. Are there ways to design for them that can be leveraged to serve a much greater public good?

Lian Chang: In terms of the provision of electricity?

Michelle Addington: That's the beginning, but I want to think beyond that. We've been looking at a new type of efficient fuel-cell system. The problem is that almost anything that creates energy gives off huge amounts of heat. Can we use it for public hot water heating and start to look at complementary public-private infrastructures—what is owned privately to serve a private need, and what are the possible public goods that can spin off it? The building and the energy are contained and belong to the private owner, yet the public good exists in a different domain. What is the most minimal set of interventions that one can take? I'm looking for where those intersections occur. Architects can think about the possibility that you're shifting from one thing, which is supplying this client's need, to another thing, which is, how do I serve a large population?

Lian Chang: Do you think that in the future there will be buildings, whether they're the Modernist buildings of the early-20th century or today's buildings, that are a great burden for us? Do you think it will be easy to adapt our future use of those buildings?

Michelle Addington: I'm very bad at predictions. I'm always wrong, and I've been surprised to see how much I rethink things. We can treat almost all buildings as being dumb armatures. For example, I'm a big proponent of direct current systems. Many of the people working on [it] want to replace a building's infrastructure; but I say, no way—you want a whole new electrical infrastructure? It's not rational to think that way. Instead, I'd love to see a clip-on system, bringing in some direct current to buildings to supply digital needs, and it actually clips on the building. The more we embed technology into buildings, the more we're investing money in things that don't allow us freedom to insert something. I could heat my whole house with a dog-bed heater, a horizontal panel the dog sleeps on that can be hung vertically and provides all the radiant stuff I need for my body. That's a clip-on. I do think that the sealed building is going to be one [in which] you'll want to see the seal broken in some way, to see the walls become much more breathable. ■

MAKE THE MOST OF IT

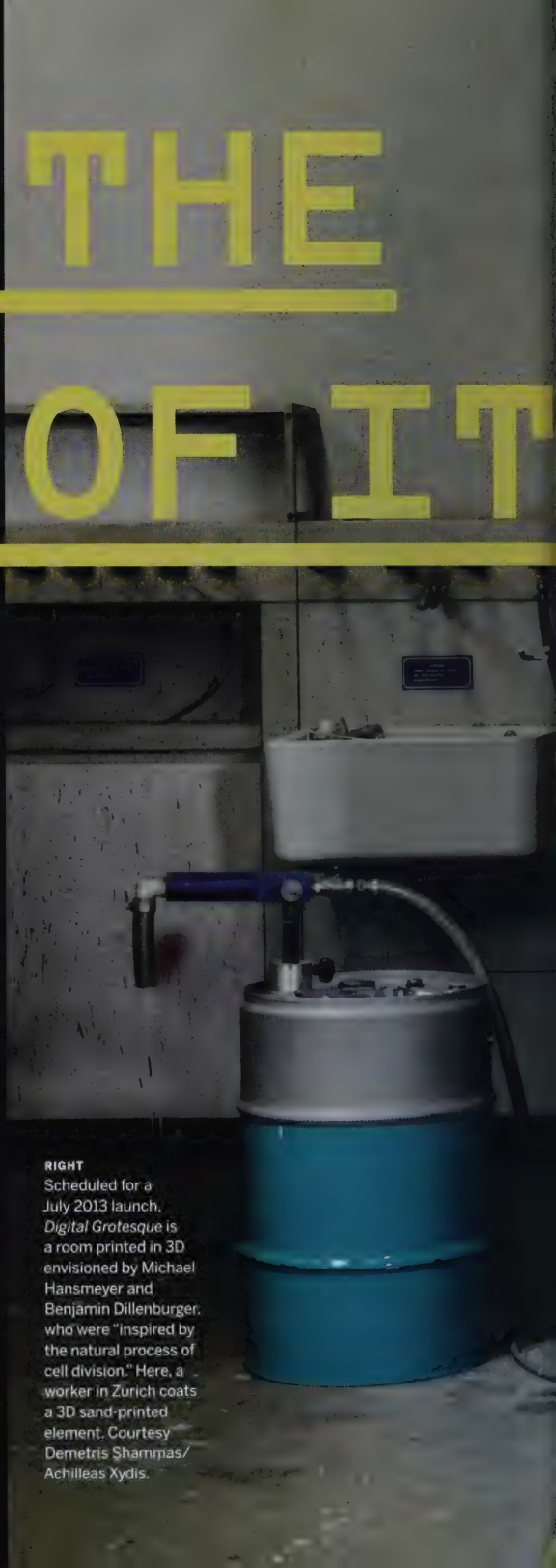
The hacker movement celebrates tactile creation

by Robert Trumbour AIA

The act of making is seemingly inescapable for an architect: The very word "architect" translates from the Greek as *arkhi* ("chief") + *tektōn* ("builder"). This would suggest that architects build buildings, but this interpretation is not entirely accurate. As I learned during my education, architects mostly *imagine* buildings; it's the builders who build them.

Over the years, architects have had a fluid and often untethered relationship to making; at times, *unbuilt* buildings are not only acceptable but also highly admired. During my transition into practice in the mid-1990s, the position of the architect was far closer to the act of imagining and quite distant from the act of creating.

Our obsession over representation and drawing makes this clear. As Robin Evans notes in his 1986 seminal essay *Translations from Drawing to Building*, architects make drawings and models of buildings, not the buildings themselves. The architect's



RIGHT
Scheduled for a July 2013 launch, *Digital Grotesque* is a room printed in 3D envisioned by Michael Hansmeyer and Benjamin Dillenburger, who were "inspired by the natural process of cell division." Here, a worker in Zurich coats a 3D sand-printed element. Courtesy Demetris Shammas/ Achilleas Xydis.



relationship to building is one step removed from the act and is dependent on translation by others to make his or her intentions real.

For someone like me who had always taken great pleasure in making things, this realization came as a grave personal disappointment. But I have often found solace in the work of the sculptor Richard Serra. He articulated his position in an early piece, *Verb List* (1967–68). Simply composed on two sheets of paper, Serra's list of action terms—to lift, to fold, to mix—exemplified his desire *to make* in the most direct means possible.

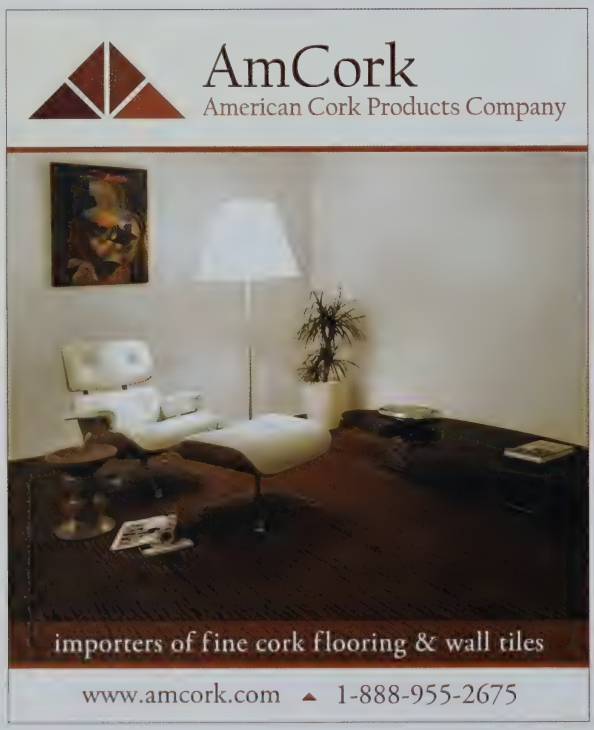
Now we are experiencing a repositioning in contemporary architectural practice: a return to fabrication much closer to Serra's expressed desire. Not surprisingly, it is students and young professionals who are in the vanguard of this change. I discussed the implications of this shift (via Skype) with two recent graduates of Wentworth Institute of Technology who participated in a design/build studio I ran a year ago at the school. James Jarzyniecki, an intern architect at ikd, and Mandy Johnson, an intern architect at Kennedy & Violich Architecture (KVA), both share an expressed appreciation and clear facility for making and have begun to navigate their entry into practice.

For these two young designers, the process of creating is innate in what they have learned. "I see it as relating to your hands, things handmade," says Mandy. For James, the word "make" has an immediacy that the word "think" does not. "The directness between an idea and what is made is something I really enjoy," he says. "I try to put myself in those kinds of situations." And, as Mandy points out, the shift extends far beyond the world of designers to encompass a broader population of tinkerers who find like-minded do-it-yourselfers in the emerging "maker culture."

One does not need to look far for evidence of this new movement. Collaborative environments such as Somerville's Fringe, a 7,500-square-foot incubator and collaborative workspace, is home to businesses ranging from video design and production to green-roof construction. Also in Somerville is the Artisan's Asylum, a maker space founded in 2010 by Gui Cavalcanti and Jenn Martinez. It not only provides space to work in but also offers courses from leather carving to bike building to business and marketing. Renting at the Asylum means access to a range of traditional equipment for working with fabrics, metals, and wood.

Complementing the conventional shops are digital fabrication tools available for sharing, such as a computer numerical control machine (CNC) and a rapid prototyping lab outfitted with a uPrint SE Plus 3D printer with a WaveWash support cleaning system. (It's hard to resist drilling down into jargon, as most discussion of tool specs eventually leads here. Knowing what is under the hood is important to makers.)

The CNC machines, adopted from the auto industry, can be used to cut the parts out for furniture, lettered signs, even whole





sections of walls. Heck, If you have access to a CNC milling machine, why not use it to fabricate your own parts and—combined with the electronics available online—build your own personal CNC machine? At least a few DIY fabricators have gone this route.

Then there's the 3D printer. With nearly 4 million views to date of the 3Doodler pen on YouTube, it is safe to say that 3D printing technology has a firm foothold in popular culture. With rapidly dropping price points, 3D printers likely will soon become as commonplace as coffeemakers. Paradoxically, the tools of the future are being used to facilitate the craftsmanship of the past.

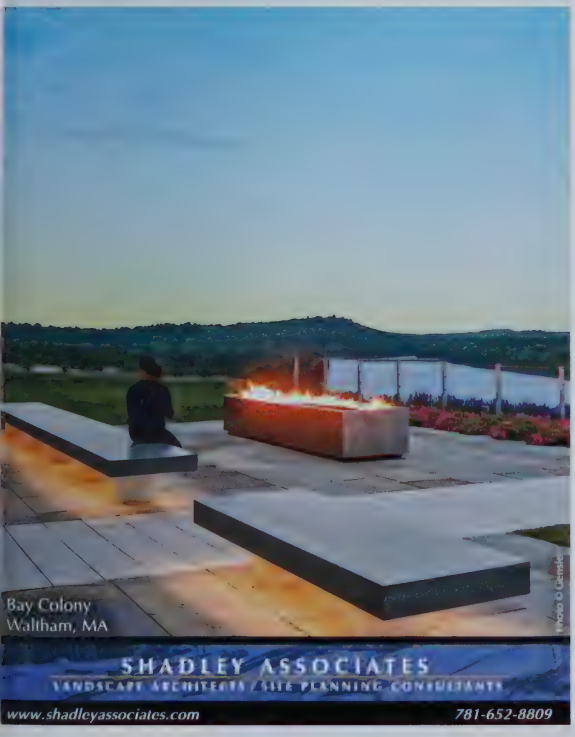
The embrace of making begs the question, why now? For designers such as Mandy and James, the maker culture provides new opportunities. Mandy's environment at KVA comprises two floors. The top floor is what you would expect in a design office: great light, open plan, and access to books and reference materials. The lower floor has a conventional woodworking shop as well as digital tools. For Mandy, the change goes beyond access to equipment to a shift in thinking. "The idea that you can just go downstairs and build a component that becomes a part of the building in the end is very exciting to me."

This raises two other possible catalysts: access and will. Design offices, maker spaces, and collaborative work environments increasingly come equipped with the necessary tools for designers to "make their own." And as Mandy notes, if it's close by, you are more likely to use it.

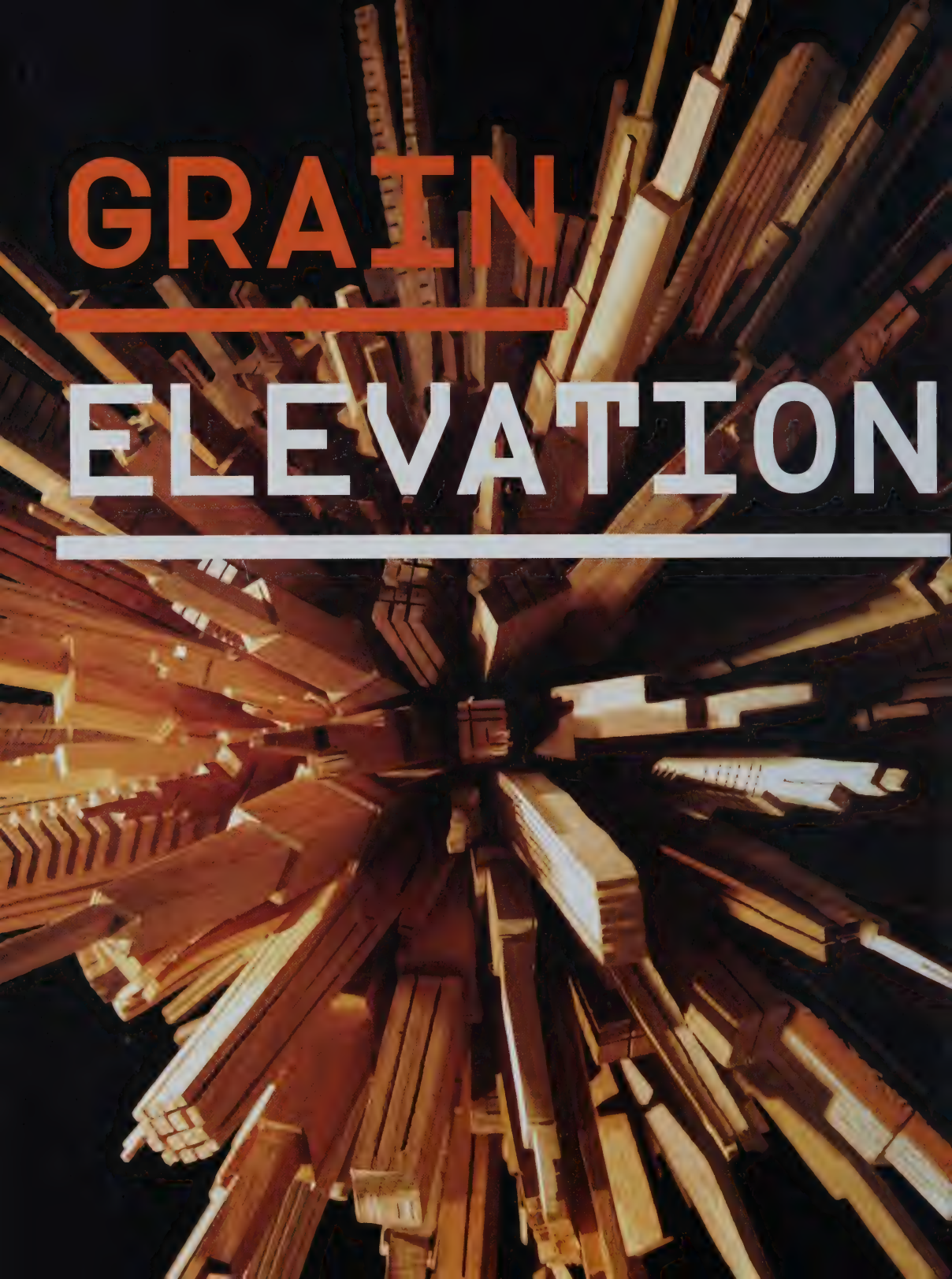
More important, however, is the existence of will. With all cultural movements, desire fosters change. A necessary part of doing anything is believing you can. Designers, engineers, and business entrepreneurs are graduating from schools with a will to make—objects, opportunities—and the will to make it their own.

A quick look at the work being produced by emerging practitioners shows vast diversification, partly a result of desire to "do it all," but clearly because the economic downturn of the past several years has forced a reinvention of practice. Architects and designers have entered territories outside conventional architecture, finding a home in exhibit design and curation, product design, and in-house fabrication, as well as traditional design-build services.

No discussion of the maker movement would be complete without considering the influence of nostalgia. For many, the movement harks back to a time when many of our possessions were made locally and by hand, even if those days no longer exist in living memory. James and Mandy both were exposed to the tinkering that took place in the basement shops of their grandfathers. The smell of linseed oil, decades-old sawdust, and the plethora of glass jars filled with nuts and bolts is forever ingrained in their psyche. They yearn for "the laying on of hands," a return to a simpler, more tactile, less "virtual" time. As James and Mandy will attest, these kinds of powerful memories affect whom we become. ■






GRAIN
ELEVATION

Wood's natural and technical virtues give it a new edge

BY PETER WIEDERSPAHN AIA

LEFT
James McNabb's *City Series* is a collection of sculptures made out of scrap wood that represent a woodworker's journey from the suburbs to the city. Each piece is cut intuitively on a band saw and depicts the outsider's perspective of the urban landscape. The result is a collection of architectural forms, each distinctly different from the next.

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"What is this building made of?" This is the first question I ask my architecture students about the opening image in their first undergraduate building construction course. They are looking at a modest historic building that sits in a meadow surrounded by trees. It has the features of a typical New England home: white clapboards, doors, and windows; black shutters; and faded-to-gray roof shingles.

One student raises her hand. "Wood?"

"Correct!" I reply. Her reward is another question. "Why did the builders choose wood?" Now almost all the students are eager to respond. "Wood is easy to work with." "Wood can be used for all parts of the house: structure, siding, roof." "The wood probably came from the trees on the site." "Wood is a warm material; it's natural." In less than a minute, the students are beginning to analyze wood's material properties, its range of uses, its detailed construction, and their psychological responses to it.

Only then do I tell them that we are looking at the front façade of the Shaker Meeting House at Sabbathday Lake, Maine, built in 1794. I use this image because it is a familiar architecture with profound material, religious, and environmental implications. With a little encouragement, these students discover for themselves the integrated natural, cultural, and technical virtues of wood.

It might seem curious to start a course on building construction in the 21st century with a wood building from the 18th century, but wood construction is by no means an obsolete technology. Quite the contrary: wood is now at the leading edge of contemporary practice. The natural qualities of wood have satisfied the needs of different building cultures throughout history and across the globe because of its availability, workability, and versatility.

These very same qualities are even more relevant in our age of building for high performance and low environmental impact. Wood is even at the forefront of new thinking for tall buildings—a domain, until recently, reserved for steel and concrete. Architect Michael Green of British Columbia calls these new timber buildings "Tall Wood." He contends that such buildings could possibly be built up to 30 stories while sequestering more carbon than they use for their production. Increasingly, wood is answering the questions of the architectural vanguard.

The current focus on wood is understandable when we consider its inherent sustainable attributes. For example, wood is the only truly renewable building material. It is grown and harvested, and can be used for building with relatively little processing. It captures carbon in the building process instead of producing more of it. Because it is relatively lightweight,

transportation energy is reduced and so, too, is the size of the foundation. Wood buildings are easy to alter, so they are adaptable and equally easy to deconstruct. At the end of the life of a building, wood is reusable or biodegradable. Wood, therefore, has the lowest embodied energy for the full life cycle of a building of all the other major construction types, including masonry, concrete, and steel.

Wood also has remarkable technical qualities. Structurally, it is excellent in both tension and compression, and has the same or better strength per weight than steel. Although combustible, wood can also perform better than steel in a fire. Because of its mass, wood can absorb significant amounts of heat energy before catching fire. If wood does ignite, the outer layer of char protects the inner mass of wood and preserves its structural integrity. Wood is also very durable when properly protected from deleterious effects of water and fire. Case in point: The timber Hōryū-ji Temple in Ikaruga, Japan, is more than 1,300 years old.

Equally captivating as these performative criteria is the strong psychological affinity we have for wood. Its idiosyncratic patterns remind us of its natural origins. A room of wood seems to embrace us with its warm color of reflected light. Sounds in a wood room are rich and mellow. The soft texture of wood is vulnerable to our interaction with it, recording the passage of time with scratches and scrapes.

Culturally, wood has paralleled the great changes in how we build. In America, all wood buildings before the Industrial Revolution were either heavy timber frame construction or a solid timber construction such as log cabins. Both construction types required a relatively high level of craft to produce them. But the explosive growth of 19th-century cities created the need to quickly build more dwellings at the urban periphery.

As masonry structures began to dominate the urban core of cities such as Boston and Chicago, the first-ring suburbs were being built with a new form of wood construction: the balloon frame. This lightweight construction type displaced the hand-hewed heavy timbers with standardized wood studs and joists produced from industrialized manufacturing processes. Additionally, the construction of balloon frame buildings no longer required fine skills or sophisticated tools. Instead, a small crew with a hammer and a saw



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could build a multifamily house for low cost in a short period of time. This democratized building construction by making it more accessible to the immigrating masses. The balloon frame and its subsequent variation, the platform frame, were agents of one of the great cultural shifts in urban America: rapidly expanding cities of wooden homes. As early skyscrapers defined the city center of commerce, wood framing created the fabric for the city's expanding population.

In the 20th century, wood technology continued to evolve to become the source for significant material innovation. Multiple forms of "engineered lumber" were developed to create materials that are stronger and more stable than solid wood. For example, compressed-particle lumber types use rapid-growth soft woods and timber-industry byproducts in ways that optimize the qualities of wood while minimizing the quantity of material. Other types are plywood and laminated beams that adhere wood pieces together to form finished lumber in any shape. Also, mass timber panels are set in place, much like precast concrete panels, for use as vertical load-bearing walls and spanning floors, which saves both construction time and overall costs.

Innovations in engineered lumber construction are gaining momentum in the 21st century. Architect Green calls wood "the most technologically advanced building material." At the molecular scale, the interwoven longitudinal plus radial cell pattern that gives wood its strength could be imitated for the next generation of smart building materials. At the urban scale, buildings of timber have already been built up to 10 stories tall.

If Green's prediction for Tall Wood proves valid, then we could be entering the next phase in the continued evolution of wood construction, one that could transform how we build and settle our cities. Imagine a city of wooden skyscrapers: structures grown, not manufactured; and capturing carbon, not creating more. New research and innovation is transforming wood once again to be at the vanguard of building technology. The virtues of wood that appealed to early Americans are now meeting global demands for more sustainable, higher-performing building materials.

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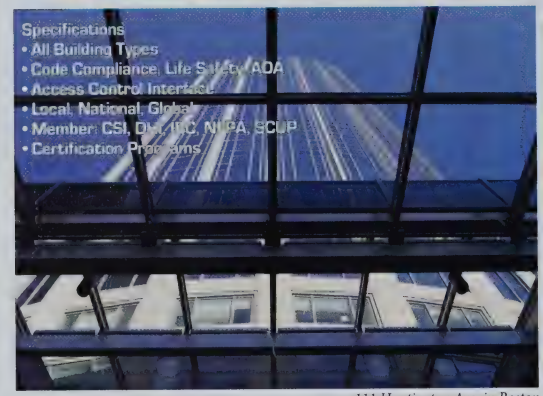
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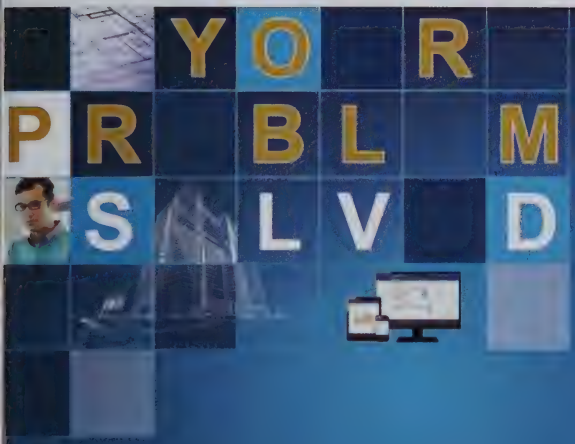


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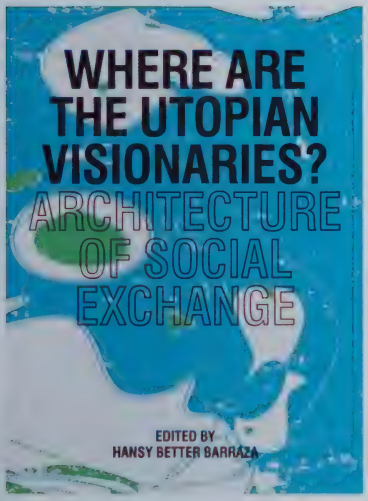




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Books



Where Are the Utopian Visionaries? Architecture of Social Exchange
Edited by Hansy Better Barraza
Periscope, 2012
Reviewed by Eric J. Cesal

Many of the projects cited in this book, which aims to spotlight architecture's social responsibilities and design opportunities, are inspiring. Despite a provocative list of contributors, however, what keeps nagging at the reader is a sense that the book is just a little bit out of time.

Hansy Better Barraza identifies as the "vocative" for the book a symposium held at the Rhode Island School of Design in 2004, during which a group of like-minded architects discussed issues of architecture and social change. From this discussion, "a book to capture this turning point quickly took on an air of inevitability." Barraza, who is the co-founder of BR-A-CE: Building Research–Architecture–Community Exchange, a nonprofit dedicated to creating new community spaces, notes that she "slowed the process of publication so as to allow contributors to develop their essays and project reports." "Slowed," in this case, is generous, as it has been nine years since that symposium, and the profession has evolved considerably.

The present difficulty is that humanitarian architecture is not as utopian or as visionary as it once was. Barraza begins: "This book turns away from the usual concerns of architecture to consider the people routinely consigned to silence and invisibility in the design process.... architects everywhere find themselves facing social responsibilities larger and more complex than any owed a single client base or single set of professional standards." The book's critical articles and case studies, she writes, "offer readers a guide to new directions in architectural practice." The case studies, however, offer design tactics and elements that are increasingly at the heart of practice, not at the fringe. Participatory design, social/spatial equity, and bamboo construction all make the requisite appearances.

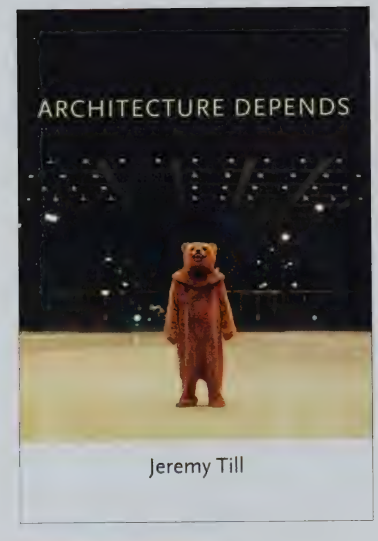
This needn't be counted as criticism. In some ways, the fact that humanitarian architecture has come into its own as a discipline now testifies to the forethought of the book's contributors. Indeed, the book might be better understood as a capture of a heady time in humanitarian architecture. Today's visionary is tomorrow's Luddite, and the architectural dialogue evolves quickly—though never quickly enough for some of us.

Frustratingly, the book doesn't make a clear distinction between projects that are implemented and those that have only been proposed—it handles them in the same manner. It shouldn't. There is now a great swell of architects who are making their utopias real, so much so that we don't have to choose between idealistic sensibilities and actionable results.

Although the book rails against a detached "starchitecture," which ignores the needs of the day, it falls prey to the familiar architect's fallacy: that something which has been designed has impact. Buildings have impact. We cannot cure humanity's ills with a rendering or model of a building any more than we can cure hunger with a picture of food.

Thoughtful essays by Michael Sorkin and Alberto Pérez-Gómez serve as bookends, both of them capturing the angst and hopefulness of humanitarian design. Peter Clegg takes us on a wonderful tour of his firm's work on environmentally and socially minded design in developing countries, adeptly connecting the large social and governmental problems affecting the humanitarian designer with an accessible, brass-tacks narrative on how to get it done. And Jonathan Massey's "Five Ways to Change the World" is a breathtakingly blunt and refreshing approach that comes off more as life coaching than architectural analysis, in a good way. One cannot help finishing the book and wondering where the authors stand now and how they would evaluate the profession at its current state, with a humanitarian design studio in every school and major firms opening nonprofit, socially minded arms as part of their practice. Is this the utopia we all wished for? If not, what's left to get us there?

Eric J. Cesal is the director of the Disaster Reconstruction and Resiliency Studio at Architecture for Humanity and the author of *Down Detour Road: An Architect in Search of Practice.*



Architecture Depends
Jeremy Till
MIT Press. 2009
Reviewed by Marie S.A. Sorensen AIA

I sit on the roof deck of a tall building north of Boston. I am on the deck for the view as much as for the sun—and for the opportunity to measure Jeremy Till's words against the multiples before me: cars, bridges, buildings, smokestacks, trains, trash piles, and repair materials expediently affixed; many, many "messy" contexts. Through the lens of Le Corbusier, or the German artists Bernd and Hilla Becher, I see a coherence of taut edges and landmark spires framing the Merrimack River. I return a phone call and give a quote for architectural services (a referral from a local hardware store): $5,000. The quantity is misunderstood. How much can you pay? Five hundred.

Is the view from the street more reliable than the view from the tower? Till's mission in *Architecture Depends* is to pull apart the certainty with which most architects approach their work. A coach who can see the bigger game, fiercely loyal but pushing for improvement, Till coaxes and prods toward relevance. He looks to anthropology, spatial geography, community planning, and literature to tease out the "situatedness" of buildings, an issue that only he and a few others have defined with such attention.

Mess—Till's central concept—is both at odds and at one with architectural practice. Mess is the unpredictability of interactions with buildings resulting in alteration, and mess is fragility: the "reality that [buildings] *always* enter the social realm as transient objects...." Coach Till would like us to appreciate weathering and other changes in buildings' appearance because of natural causes, either harnessing them or marking milestones of "positive transformation toward completion" as David Leatherbarrow and Mohsen Mostafavi have done in *On Weathering: The Life of Buildings in Time*.

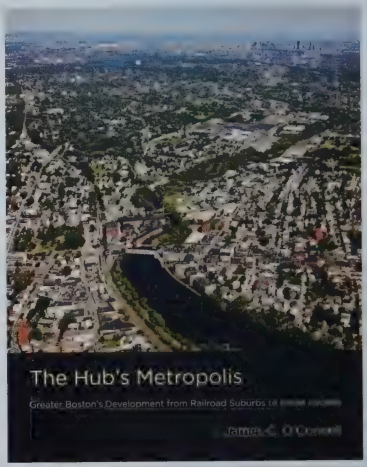
Debunking Modern and Beaux Arts pedagogies alike, Till does not reject design-ordering principles altogether; rather he refutes the certainty of holding onto one set of principles as opposed to "remaining open." How, then, does Till decide what things look like? What does he consider enlightened practice?

Till holds that progress is false, but he is an inventor of methods, his favorite two being technological hybrids ("lo-fi") and narrative. Till's "lo-fi" architecture rejects the wasteful fetishism of high-maintenance design: curtainwalls of clear shiny glass, for example, cleaned acrobatically at great expense. Till enjoys provocative jokes. At Interbuild, a high-profile British building materials tradeshow, he and Sarah Wigglesworth (architect, his wife) make a compressed hay bale wall sheathed in polycarbonate that instigates shouting into a mobile phone from one onlooker: "I am standing in front of a *fooking* haystack, and they are calling it the future!"

Narrative as an ordering principle—memory-images cast as words, then as buildings—is also fruitful for Till. He explains how the design of his home was negotiated with Wigglesworth over several weeks as they told stories of spatial memories to each other while walking through the back streets of London. Later, he cites a ribbon-cutting ceremony in which Frank Gehry allows that his inspiration for the Guggenheim Bilbao was his grandmother's carp pond, experienced as a child; Till stands by, willing "Frank" (whom he presumably knows) not to lead us to the conclusion that he has made "fishy space."

In *Architecture Depends*, Till has both whet our appetite for more provocative hybrids and "word-buildings," and set the stage for an extensive project that bridges anthropology and psychology: a longitudinal ethnography of the occupants of a building or district; complementing this, a study of people's visual habits and spatial memories. While arguing for the view from the street, Coach Till, now head of Central Saint Martins College of Arts and Design in London, is an inducted member of the tower tribe.

Marie S.A. Sorensen AIA is principal-in-charge at Sorensen Partners | Architects + Planners and a photographer of urbanism. She teaches architecture at Wentworth Institute of Technology and Massachusetts College of Art and Design.



The Hub's Metropolis: Greater Boston's Development from Railroad Suburbs to Smart Growth
James C. O'Connell
MIT Press. 2013
Reviewed by David Luberoff

Preparing to move to Boston in 2000, James O'Connell went "scouting for a home to buy" in Milton near the Blue Hills Parkway. As an urban and cultural historian, he recognized that the road and nearby neighborhoods were typical of Boston's inner-core suburbs and thought it would be interesting to learn more about how they were built. Thus began a more than decade-long exploration that culminates with *The Hub's Metropolis*.

O'Connell, a community planner for the National Park Service in Boston, fills

three notable gaps with this book. First, rather than focusing on the city's historic core, O'Connell turns his eye on the entire region. Second, rather than focusing on well-known epochs and structures, he is interested in the full sweep of development, including the region's ubiquitous and largely undistinguished split-level houses, Cape Cod–style homes, and McMansions. Finally, O'Connell recognizes that there is a gap between guidebooks, which tell us what to see but not why, and history books, which tell us why but often ignore the what. To fill this third gap, he describes nine waves of development, starting with "Traditional Village Centers and Proto-Suburbs," continuing through such eras as "Metropolitan Parkway Suburbs" and "Postwar Automobile Suburbs," and ending with the current "Smart Growth Era."

The book's "guidebook" elements point to extant buildings and communities that exemplify each era. In Newton, where O'Connell ultimately settled, he not only suggests well-known sites such as the Jackson Homestead and the MBTA Green Line station in Newton Centre but also points to Oak Hill Park, a development of 418 small, cottage-style homes the city built in the late 1940s for veterans of World War II and their families.

Although useful, the book does have its limits and flaws. Because it spans vast amounts of both time and space, the accounts of specific projects cannot convey the wide array of values, goals, beliefs, and forces that drove them. Writing about the Middlesex Fells, for example, O'Connell notes that it was part of a seminal plan prepared by Charles Eliot and Sylvester Baxter, creators of the Metropolitan Park Commission, a notable example of regional governance in an otherwise fragmented region. However, he does not mention the significant class and religious differences behind the park's creation. Indeed, as historian Michael Rawson has pointed out, the park's very name was a 19th-century fiction designed to suggest a nonexistent Anglo-Saxon past for an area called The Five-Mile Wood, popular with Irish-Catholic immigrants.

Such gaps become more striking when O'Connell, who has strong views on what he considers desirable policies, writes about contemporary issues. He laments the state's decision not to construct a second major airport at Fort Devens when that facility closed in the early 1990s, but does not note that funding the new airport probably would have required enormous increases in landing fees at Logan Airport during construction and possibly closing Logan after the new airport opened. Nor does he mention that a successful airport at Devens would have spurred the sprawling development he frequently decries elsewhere in the book.

Despite these drawbacks, *The Hub's Metropolis* is a welcome addition to my shelves of "books about Boston" and will accompany me as I travel the region.

David Luberoff is senior project advisor to the Boston Area Research Initiative at Harvard's Radcliffe Institute for Advanced Study and a consultant on issues related to transportation, land use, and urban governance.





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Generation Why Not

Dave Giancarli ASSOC. AIA is a designer at The Architectural Team in Chelsea, Massachusetts. At 23, he is the youngest member of the Boston Society of Architects.



RIGHT
Songdo, South Korea
Photo: Simon Bond

To design for the future you must think of the worst-case scenario and then try to solve it before it ever happens. A professor told me this when I was researching my graduate thesis in architecture school, and the thought has absorbed me ever since. What is the role of my generation in the architecture of the future?

We are the ones who witnessed a transition to a global society. As the world moves forward, so does our awareness of the problems that must be tackled. Social media has acted as a platform for revolutions around the world, for people who are no longer complacent with their social, political, or economic situations. Recent uprisings in Turkey and Brazil began with disputes over public urban spaces, so architects clearly have a role in creating peaceful, stable societies.

As our way of thinking shifts toward a more open perspective, we begin to realize that the idea of the "American dream"—in essence, the suburban life—is inefficient, both culturally and economically, and that a societal shift should occur. Numerous factors will figure into this. For example, my generation is nowhere near as auto-dependent as previous generations. A recent study found a sharp decline over the last decade in the number of 20- to 34-year-olds who even have a driver's license.

As attitudes shift about privacy, social interactions, and cultural values, many in my generation no longer wish to be isolated within the privacy of suburban homes. Cities have become safer and more culturally rich, and, as young professionals, we have a new desire to embrace more socially engaging living situations.

These factors lead to a scenario where the suburbs become phased out. Imagine a situation where the suburbs as we know them no longer exist, and most Americans live in a denser, urban environment. What would happen to the buildings that are vacated? Would they be demolished or left to nature to reclaim, or would they just decay and become run-down areas where people who could not afford the shift to urban living would congregate? It's unlikely that everyone will be able to afford the cost of urban living, so what can architecture do to assist in affordable and innovative housing solutions?

Would the massive influx of people cause a return to the crammed cities of the prewar era, with issues of overcrowding and stresses on resources such as water, sanitation, and energy? Or would the new technologies that we've been developing over the past 30 years—from green roofs and intelligent façades to flexible microunits—help us maintain such a dense urban environment? I like to be hopeful and think about how we could solve such a problem before it starts—by learning from the failures of the past and using current and future innovative technologies. How can architecture avoid the negative effects of overcrowded environments and still sustain a high quality of living?

A distinction must be made between a dense urban fabric and overcrowding. Density suggests a high ratio of people, activities, and amenities, while overcrowded environments bring along undesirable characteristics such as unsanitary conditions. There are many dense European cities that we could emulate, such as Copenhagen and Amsterdam. Our cities will be successful if architecture and urban design promote social and cultural activities through density and a blending of building uses. Modern building systems, improved public transportation, and flexible living spaces can assist in managing this large growth in urban population.

By 2030, according to the United Nations, more than 60 percent of the world's population will be living in cities—some 5 billion people. Whether the cities of the future are a joy to live in or a "worst-case scenario" depends on how well my generation plans for the worst while always striving for the best. ■



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—**Eric Army**, AIA
Principal, Studio Mega Architects, Providence, RI

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COAST

ABOVE
Thermal expansion, melting glaciers, and subsidence are the three main causes of sea-level rise.

Image courtesy of Sea Change: Boston, a research initiative by Sasaki Associates.

COVER
Low Tide (Weekapaug), by Jesse Burke, 2006. Courtesy ClampArt, New York City.

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2013 BUILD NEW ENGLAND AWARD WINNER

Winslow Homer Studio Mills Whitaker Architects ©trentbellphotography

Resist, retreat, reconsider, repeat

The architectural press is full of celebratory articles about reclaimed urban waterfronts. "The secret to Chattanooga's downtown revival," reads one headline. "The rebirth of Toronto's waterfront." "Nature, Newark style." After centuries of treating harbors and riverfronts as our communal backyard—out of sight, overgrown, fit for dumping garbage and other effluvia—we have turned them into our proud new front yards, with fabulous water views, million-dollar condos, and outdoor festivals. From Boston to Berlin, the water's edge has become the catalyst for economic development, as gritty industrial uses have yielded to an urbanism of delight. How rich—or cruel—is the irony, then: We have rediscovered the allure of the sea just as it has risen to threaten our glittering work with inundation.

The problem of coastal pressure is not just, or even particularly, confined to the developed world. More than 45 percent of the planet's population lives on the thin border of continental crust along the sea. And the concern is not solely urban, though it is hard to separate "coast" from "urban" because the world's population is migrating inexorably to port cities, and because it is the dredging, filling, dumping, and building of urban industrialization that has so upset the natural order of things.

This issue of *ArchitectureBoston* doesn't spend too much time on consciousness-raising. We assume the readership is aware of the urgent threats to the built environment wrought by climate change. The Boston Harbor Associates' *Preparing for the Rising Tide* report lays it all out for us locally, and newly drawn hazard maps from the Federal Emergency Management Agency, which will place hundreds of thousands of homes in flood zones for the first time, bring the sobering news to the rest of the country. Instead, we focus on solutions—new thinking about mitigation measures finely honed to the particulars of coastal communities around the globe. (Elsewhere in these pages, Chris Reed of Stoss Landscape Urbanism refers to this as "adopting an amphibious mindset.")

Still, one point deserves to be underscored: Adaptation to climate change does not mean abdication. Some environmental activists fear that learning to live with sea-level rise will take the political pressure off efforts to reduce greenhouse gases in the first place. Obviously, the two must work together. When the United Nations estimates that buildings contribute more than one-third of the world's greenhouse gas emissions, the obligation of architects and designers to eliminate the threat as well as adjust to it is clear.



PHOTO Conor MacDonald

Similarly, we need a layered approach in response to the hot new world we inhabit. Over just the past few decades, favored solutions have cycled through a "Three Rs" approach: from resistance to retreat to resilience. Massive hardscape concepts such as the Thames Barrier downstream of central London have evolved into more organic approaches, such as reintroducing oyster beds to the Passaic River in New Jersey. But nature's infinite variety demands equally varied solutions, informed by deep analysis and customized to the unique geology of every space. What will not do is to simply emulate the heroic little Dutch boy with his finger in the dike.

Nature teaches us that all things are impermanent—most especially our built infrastructure, skyscrapers, and other hubristic hedges against mortality. We can work with nature, but we cannot armor ourselves against it. The inestimable Rachel Carson had this to say about the coast in 1955, long before the current emergency: "For no two successive days is the shore line precisely the same. Today a little more land may belong to the sea, tomorrow a little less. Always the edge of the sea remains an elusive and indefinable boundary."

If we can live in harmony with this truth, we may just make it through all right. ■

Renée Loth
Editor



Vermont Mountain House

Stowe, VT

Designed by:

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Robyn Gentile

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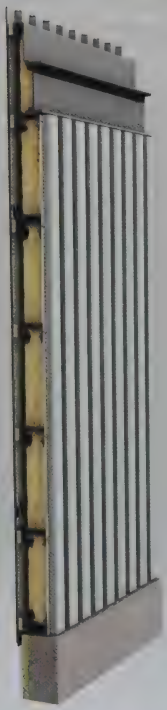
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On "Next" (Fall 2013)

Ann Sussman's article on the silver tsunami ("When I'm 84") was interesting to read because it raised many issues no one wants to face. As the clock ticks by, we refuse to divulge our age when asked, color our gray ever more frequently, and moisturize the wrinkles away with abandonment.

In New York, we pride ourselves on how we are a NORC (Naturally Occurring Retirement Community). Everything can be delivered. Services abound. Buses kneel. Since Local Law 58 was first passed, co-ops and condos are required to be made accessible. Assisted-living facilities are so artfully blended into the cityscape that most residents seem surprised they exist here.

Bostonians have always impressed us as particularly hardy and frugal souls, preferring personal warming during the cold months instead of the 90-degree blasts of steam that keep us in camisoles all winter long. As retirement looms, many seem to be seriously contemplating aging in place.

When clients talk about renovations, fancy kitchens usually trump elevators. No one makes an existing house accessible until they have a health crisis and have to. But priorities change. Ten years ago, sustainability was barely on our radar screens and storm surge was hypothetical. Now it's likely that we will rethink what it means to age in place and will come up with some innovative solutions.

ABBY SUCKLE FAIA
President, cultureNOW
New York City

Sussman lays out a compelling case for a new way of thinking about the built environment. US Census figures predict the over-65 population doubling by 2060, and the over-85 tripling. How are we as a profession preparing?

The article focuses on single-family homes, and the universal design movement is doing a great service by promoting one-level living with adaptable features that adjust to changing mobility needs. Realtors are beginning to understand that some fluency with access issues broadens their marketability. Architects likewise need to be deft at navigating the territory of inclusive design—and persuasive at selling this to clients.

Sussman notes a nice symbiosis between environmental and social sustainability. For aging eyes that need more light and for the hard of hearing who rely on visual communication, good lighting is essential. Fortunately, passive solar principles such as controlled and ample daylighting, combined with new energy-conserving electrical fixtures and appliances, have universal appeal.

Lighting is just the tip of the iceberg. Designers need to rethink how layout, materials, details, and finishes contribute to environmental visibility, in terms of both problems and solutions. How can we make a kitchen for a low-vision individual? What is a closet like for someone who's blind? Do ubiquitous touch-screen controls make any sense?

Sussman challenges architects to envision alternatives to the typical American three- or four-bedroom single-family house and mentions cottage communities, modular granny flats, and multigenerational homes. Add cohousing and shared housing to the list. While these are exciting new residential prototypes, they do not relieve architects of responsibility for creating places where people with a variety of conditions can thrive.

I take issue with the comment that "an architect can go from ignorance to effective design for seniors without tremendous effort." If this were true, all new homes and all commercial and institutional buildings would be fully accessible, and access consultants would be out of work. Effective design for an aging population requires programming skill, empathy, resourcefulness, and creativity.

In *The Accessible Home: Designing for All Ages and Abilities*, I survey 25 houses around the country, designed by architects for and with homeowners living with disabilities. The composite picture that emerges represents a new way of thinking about the American home. It also offers a road map for navigating a broad range of accessibility issues. Guidance and inspiration don't come from code compliance but from the living laboratories of people's homes and the wisdom of creative designers.

DEBORAH PIERCE AIA
Principal, Pierce Lamb Architects
Newton, Massachusetts

Robert Trumbour's article "Make the Most of It" reflects a subtle shift in placemaking that we observed during the selection process for the 2013 Rudy Bruner Award for Urban Excellence. Among the 90 entries for our national design award, we noted an increasing number of projects reflecting characteristics of the "maker" movement: places made possible by the hands-on efforts of architects, artists, and other community members to make things—art, food, public spaces, and structures—that bring people together and improve their lives.

Three of our 2013 winners illustrate this approach: Inspiration Kitchens–Garfield Park in Chicago, an 85-seat restaurant that provides affordable, healthy meals cooked by people in workforce training; the Steel Yard in Providence, Rhode Island, a 3½-acre steel facility repurposed into an industrial arts campus by two artists; and Congo Street Initiative in Dallas, six houses on a one-block-long street constructed/reconstructed by architecture students, homeowners, and community volunteers.

These projects illustrate the potential of modest, small-scale projects led by visionary "makers" to effect broader change

in our communities.

While this trend is hardly new—think Auburn University's Rural Studio or Project Row Houses in Houston—it's refreshing to witness the energy, enthusiasm, and hope reflected in these efforts and an emerging generation of practitioners.

ANNE-MARIE LUBENAU AIA
Director, Rudy Bruner Award for Urban Excellence
Cambridge, Massachusetts

Your "At Issue" series of articles brought to mind a recent conversation I had with a group of practicing architects at a small firms committee meeting at the BSA. As we discussed the importance of the role of design and the architect's impact on a project, the meeting devolved into a cathartic session where everyone expressed their frustrations. Some scoffed that the public was not educated enough to appreciate design, so in their opinion, the education of the public would resolve this problem. Whether true or false, this is a futile argument. While we battle an old war between architects and clients, the profession is evolving.

As Henry Beer mentioned in his article, "Venturing into the next realm," the unanticipated will have a profound impact on the future of the profession. The unknown—the constant reinvention and revitalization of design—is what propels buildings, products, and the world forward. Designers need to continue asking "What If?" and breaking the rules. What is perceived as important and vital must change because the world is changing. I look forward to being a part of that change.

NICOLE ASH
Intern, Yang Architects
Cambridge, Massachusetts

While agreeing with the general predictive statements in Dave Giancarli's vision of the future in "Generation Why Not," we differ in the prescriptive desire for architecture to solve "the problem." The idea that architecture should assume the solution to problems yet unrealized is dangerous territory indeed, if not an open invitation for the profession to repeat those failures.

Seeing the profession this way is to experience the world as a set of problems waiting for the designer's singular resolution. This kind of architectural absolutism perpetuates the mindset our generation would seemingly hope to avoid. Boston itself is perhaps the best example of this "top-down" attitude; the Boston Redevelopment Authority's infamous erasure of the West End stands as perhaps the best example.

Architecture in the absolute denies the richness and diversity of voices already found within the landscapes we as young architects would seek to enhance. Social media platforms and crowdsourcing have proven themselves remarkably potent in their ability to self-critically outline and address the needs of the many while working toward an agreed-upon solution. This generation's successful mitigation of the future will depend on our ability to translate these generational ideals into real and tangible new approaches to the practice of architecture.

AARON TETZLAFF
BArch candidate
ETHAN ZINKOWSKI
BDS in Historic Preservation candidate
Boston Architectural College

What do I think? I think those images of Felice Varini's work are absolutely breathtaking! More! Please.

PETER COXE, AIA EMERITUS
Ketchum, Idaho

Correction: In the "Next" issue, an item in "Covering the Issues" misattributed the quote about entering Penn Station "like a rat;" it should have been credited to Vincent Scully.

For more letters, visit architectureboston.com. We want to hear from you. Letters may be sent to letters@architectureboston.com or mailed to *ArchitectureBoston*, 290 Congress Street, Suite 200, Boston, MA 02110. Letters may be edited for clarity and length, and must include your name, address, and daytime telephone number. Length should not exceed 300 words.

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PHOTO Colleen Baker

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Jay Wickersham FAIA is an architect and lawyer who practices architectural and environmental law with the Cambridge, Massachusetts, firm Noble & Wickersham. He is associate professor in practice at the Harvard Graduate School of Design, where he teaches courses in the history, law, and ethics of architectural practice.



PHOTO Michael Naimo

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("Welcoming the Water," page 38)
Wendi Goldsmith is a Yale-trained geologist and CEO of Bioengineering Group in Salem, Massachusetts. A pioneer in the application of sustainability principles to planning, development, and infrastructure, Goldsmith played a lead role on the design, planning, and program management of the $14.5 billion post-Katrina Hurricane and Storm Damage Risk Reduction System.



PHOTO Silvia Illia

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("Wash 'n' Dry City," page 42)
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Elizabeth Christoforetti is an urban and architectural designer at Utile and a lecturer in multifamily housing at Northeastern University.



PHOTO Michael Priest Photography

Jerold S. **Kayden**
("Castles Made of Sand," page 44)
Jerold S. Kayden, an urban planner and lawyer, is the Frank Backus Williams Professor of Urban Planning and Design at Harvard's Graduate School of Design. He recently served as principal investigator for the Harvard-Netherlands Project on Climate Change, Water, Land Development, and Adaptation.

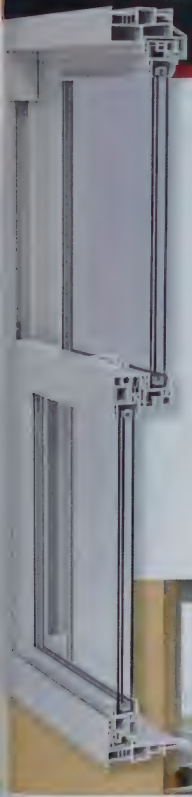


PHOTO Al Velella

Christine **Cipriani**
("4 If by Sea," page 54)
Christine Cipriani is the coauthor, with Peter McMahon, of the forthcoming *Cape Cod Modern* (Metropolis Books, 2014), which was awarded a grant from the Graham Foundation. She has written for *Architectural Record*, *Dwell*, and *Modernism*, and previously edited nonfiction at publishers including Beacon Press and Penguin.

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Opinions and Observations

Jason Middlebrook: My Landscape

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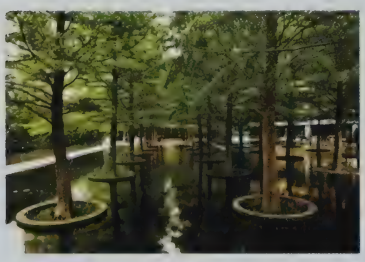
The current obsession with the landscape provides the subtext for a body of work by Jason Middlebrook that probes the relationship between nature and human activity. Most hauntingly, in a series of large-format works on paper, he imagines a postdiluvian society in which habitable land is reduced to a network of islands. But the dramatic focal point of the exhibition is a site-specific installation inspired by Frank Lloyd Wright's Fallingwater. Three terraces made of sheets of worn rectangular Styrofoam blocks (the material is recycled from an earlier show at the museum) stand in for the cantilevered concrete slabs of Wright's masterpiece. Suspended from the trusses of the gallery, the mobile, which appears precariously heavy at first glance, is activated by the movement of water cascading over each terrace as it heads toward an opening in the floor of the gallery. A balcony overlooking the exhibition hall provides an opportunity to view this, and milled wooden planks—some of which reach a height of 20 feet—that line the gallery, from multiple points of view. On the smooth surface of the planks propped against the walls, Middlebrook traces lines, many of which are rendered in vibrant colors but echo forms found in nature (such as tree rings, spider webs, and stream beds). When viewed from a distance, the organic contours of the planks present a striking silhouette against the lofty height of the gallery interior. When seen at close range, the intensity of color and mechanical precision of the applied lines juxtaposed with the color and grain of the natural wood serve as a subtle and provocative commentary on the ways in which human activity has altered the natural landscape.

ABOVE
Falling Water, in the exhibition *My Landscape*, 2013. Photo: Arthur Evans.

Lucy M. Maulsby is an assistant professor of architectural history at Northeastern University.

The Landscape Architecture Legacy of Daniel Urban Kiley

McCormick Gallery, Boston Architectural College, 320 Newbury Street, Boston. Through 2013



ABOVE
Fountain Place in Dallas. Photo: Alan Ward. Courtesy the Cultural Landscape Foundation.

Dan Kiley is considered one of the most important landscape architects of the 20th century, yet the Boston-born designer of more than 1,000 projects worldwide remains little known. An exhibition at Boston Architectural College aims to bridge that gap. As part of The Cultural Landscape Foundation's *Landslide* compendium, *The Landscape Architecture Legacy of Daniel Urban Kiley* features a retrospective of the work of this visionary Modernist. Kiley, who frequently collaborated with Eero Saarinen (with whom he won the St. Louis Arch competition in 1947), was influenced by three elements: adventurous plant possibilities, an interest in new Modernism, and formal European works. Among his revered projects are two in Texas—the Dallas Museum of Art Sculpture Garden and Fountain Place—and the Miller Garden in Columbus, Indiana. Kiley once said that creativity was "a patient search and a joyful discovery," words that might serve as inspiration for this showcase.

Fiona Luis is deputy editor of *ArchitectureBoston*.

GENIUS LOCI

An open secret

The official name is Mayor Thomas W. Danehy Park. No one in Cambridge ever calls it that—any more than anyone in Cambridge ever calls Massachusetts Avenue anything other than Mass. Ave. The street name is always given as two syllables, like "bloodstream." Danehy gets three, like "heart and lungs." That's what the park feels like, the city's heart and lungs—lungs especially. It's where Cambridge breathes.

The site of Danehy was for many years a bunch of clay pits, then a landfill. It rises above the rest of Cambridge—noticeably, if not vertiginously—because the soil dug up for the Red Line extension from Harvard Square to Alewife was piled up there. Reclaimed as parkland in 1990, Danehy's 50 acres increased by half the amount of public open space in Cambridge.

It's not as if the city is wall-to-wall asphalt—or rather, Cambridge being Cambridge, red brick. The place is tightly packed, yes—the 30th most densely populated US municipality, according to the 2010 census. Within that tightness, however, one finds Cambridge Common, Mount Auburn and Cambridge cemeteries, Harvard Yard, Fresh Pond. Lying athwart West and North Cambridge, Danehy is within walking distance of them all. Yet it differs from them in a key respect. They either serve a practical function or feel hemmed in, or both. Fresh Pond, for example, is the site of the city's water-treatment facility as well as a recreational venue.

Now it's true that Danehy has its purposeful aspects: softball and soccer fields, a dog park, picnic benches, playground equipment, a running track (it's where the Cambridge public high school teams hold their meets), and a sledding hill that whenever there's snow on the ground may be the single best place to observe just how diverse Cambridge is. That diversity extends to topography: a sledding run extended too far ends up in a marsh.

What's so great about Danehy has little to do with the many specific uses the park is put to. It's that once you're in Danehy, there's a sense of openness unlike anywhere else in Cambridge. The Yard is a collection of buildings. Fresh Pond is a ribbon of land defined by the water it surrounds. The cemeteries are greenery enabled by the desire to give dead people a home. Danehy is different. First and foremost, it's a place that's a *space*. Stephen Crane once wrote a poem about a man "pursuing the horizon." Danehy is that rare location in Greater Boston where one might plausibly imagine someone going about just such a pursuit. Failing that, it's also very good for flying kites.

Danehy's openness is distinctly urban in nature. Parts of Central Park feel so secluded that a visitor might forget that he or she is in Manhattan. Danehy isn't like that. The thrum of traffic from Routes 2 and 16 is inescapable—far enough away to be rather pleasant, in a cicada-ish way, but inescapable. When the trees have lost their leaves, the tops of the Hancock and Prudential buildings are visible throughout much of the park. The sight of them is like Jude Fawley's glimpse of the towers of that other college town, Christminster, in *Jude the Obscure*, at once beckoning and a little bit daunting.

There's nothing daunting about the sight of the Sunday morning cricket players. Urbane as well as urban, they're rather enchanting, actually, and a reminder of what a cosmopolitan place Danehy can be. How cosmopolitan? My most memorable Danehy experience involved an unexpected encounter with a Brazilian marching band. Truly, there is no openness like samba openness.

Mark Feeney, an arts writer for *The Boston Globe*, lives about four minutes from Danehy by bike.



BELOW
Mayor Thomas W. Danehy Park in Cambridge, 2013. Photo: Rishi Jain.

Practical Utopias: Global Urbanism in Hong Kong, Seoul, Shanghai, Singapore, and Tokyo

Center for Architecture, New York. Through January 18, 2014



ABOVE
Express Rail Link, West Kowloon Terminus, Hong Kong, designed by Aedas. Image: Andrew Bromberg.

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There is something aggressive about the title of this exhibition. When prompted, curator Jonathan Solomon responded, "Any student of history—or of architecture—knows that the aspirations of utopia are always shadowed by the specter of dystopia." That specter is pronounced in the projects that populate this small show, made up of extremely large, even monstrous, works: supertall towers, central business districts, mixed-use superblocks, and transportation infrastructure. Collectively, they represent the impatient urbanism that has flourished throughout Asia over the past 20 years, the built results of the efforts of five cities—Hong Kong, Seoul, Shanghai, Singapore, and Tokyo—to assert their place in a "global economy."

These projects often defy comprehension. One characteristic description: "Marina Bay Sands is a mixed-use integrated resort made up of a museum, two 4,000-seat theaters, a 2,600-room hotel, shopping mall, convention and exhibition spaces, and a casino." This Singaporean development is labeled Fun, alongside the exhibition's other categories: Green, Dense, Thick, and Connected.

Although this sort of thematic grouping is standard for recent architectural exhibitions, it comes up short here because the interest of the projects is not their visible surface but the inordinate complexity of underlying systems—mechanical, structural, and organizational. A more forceful curatorial approach might have focused more on the show's best drawings—cross-sections and bird's-eye cutaways—that reveal deeply layered infrastructures.

Nevertheless, the scale and intricacy of these islands of congestion are enthralling and nearly unbelievable. These projects swallow the city and reproduce its complexity within their boundaries, producing new spaces that we can call "utopian," at least for the time being.

Aleksandr Bierig lives and works in New York. His writing has appeared in *Log*, *Clog*, *Architectural Record*, and *Pidgin Magazine*.

SEEN
Horizon, Saskatchewan

Ever since I read the book *The Perfection of the Morning*, by Sharon Butala, I have wanted to see the prairies. I wanted to feel the horizon line, the fields of gold, and the immensity of that space. There was a contradiction between nothingness and fullness, of having to pay attention to the tiniest detail in order to orient myself within the hugeness. What I hadn't known was that this particular land, the prairies, was once ocean; and on a recent road trip, the car became a small boat heading due west as it followed the railway line. It was a challenge to focus on anything in the prairies except the vastness. Slowly, a structure would emerge: tall, imposing, angular, often painted white, sometimes green or red, writing high on the wall. It might say Horizon, Saskatchewan. A place named, a history of a certain time in the Canadian prairies. I was grateful to those old grain elevators, appearing like cathedrals, vaguely Pre-Romanesque in design. They became a port, anchoring us for a brief while and releasing us back into the ocean. They are beautiful buildings, plain and functional and sharing a commonality of design that is now becoming memory.

Liz Davidson is an artist who lives in Sutton, Quebec.

BELOW
Photo: Liz Davidson.

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Covering the Issues

Suburbia RIP?... In 1958, Jane Jacobs wrote a piece called "Downtown is for People" for *Fortune* magazine that would eventually be developed into her seminal book celebrating the qualities of walkable urban living. In the magazine's most recent foray into planning topics (July 22, 2013), ***Fortune***'s managing editor Leigh Gallagher argues that we're seeing "The End of the Suburbs," in an excerpt from her book of the same name. Suburbanites are sick of driving, and sprawl's health costs are now known; big grocers and spec homebuilders have begun building in Boston and Brooklyn. The real news here is this statistic: Since 2010, "the largest American cities grew at a faster rate than their surrounding suburbs" for the first time in 90 years. Jacobs would be pleased.

Windy cities... Solar panels have become common on buildings and in city neighborhoods, while wind turbines still tend to be out on the edge—of the harbor, in the ocean, or on industrial land. The most efficient systems are large—some three-blade turbines are now taller than 50-story buildings while their blades sweep more than 400 feet—and most are too loud for urban areas. This may soon change. In "Into the Wind" (***Fast Company***, September 2013), Jon Gertner chronicles the beginnings of a radical new turbine that is smaller, quieter, and more efficient than its three-blade brethren, inspired by the dynamics of jet engines. Now with its first full-scale test on Boston's Deer Island, it promises to be the PC of wind power: able to be located within populated areas and to distribute power closer to the need.

Water, water everywhere... Sea levels are rising, storm surges are getting stronger, and despite the disbelief of some politicians, we *can* do something about it. Two substantial essays tackle the topic: Jeff Goodell's "Goodbye, Miami" for ***Rolling Stone*** (July 4–18, 2013) and John Seabrook's "The Beach Builders" for ***The New Yorker*** (July 22, 2013). From constructed seawalls to engineered beaches, from raising structures—or an entire downtown—by a story to abandoning cities entirely, Goodell and Seabrook explore the architectural, political, and economic aspects of addressing sea-level rise. Seabrook focuses on 2012's Hurricane Sandy while Goodell opens with the fictitious Hurricane Milo of 2030, yet they both send the same message: It's real. Act now.

Future tense... Meanwhile, back in the land of blissful oblivion, Carl Swanson previews Pritzker Prize–winning architect Zaha Hadid's first New York City building for ***New York*** magazine ("The Zaha Moment," July 22, 2013). Swanson celebrates her office's glamorous future-looking aesthetic, in this case applied to a forthcoming 11-story residential condo that will overlook the High Line (a famously repurposed piece of abandoned 20th-century infrastructure). When Swanson asks about Hurricane Sandy, Hadid's office effectively dismisses the topic. Although that response merits modified praise—sea-level rise is a technical issue, not necessarily an aesthetic one—architects need to join the discussion. This is far more a real part of the future than any swoopy curve.

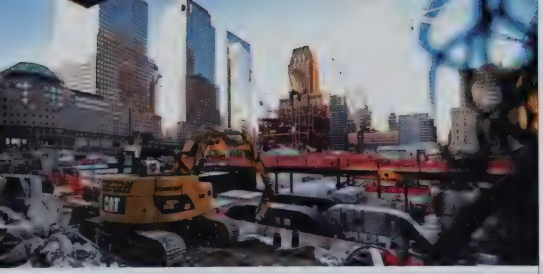
Current topic... For a sea change, retreat to ***Lapham's Quarterly***. The Summer 2013 issue focuses on "The Sea," including writings, maps, and images from the past 2,000 years. We continually build next to the sea, yet use it as a place to escape from all our building. From Currier and Ives' "Port of New York" engraving to Charles Dickens' description of an English village at the coastline, from Venice to Panama, the pieces are neither arranged chronologically nor geographically and, as such, offer the sensation of lapping waves. In his preamble, Lewis H. Lapham reminds us that "to know the sea is mortal is to know that we are not apart from it… The abyss is human, not divine, a work in progress, whether made with a poet's metaphor or with a vast prodigious bulk of Styrofoam."







Gretchen Schneider AIA is executive director of the Community Design Resource Center of Boston.



Battle for Ground Zero

Brookline Booksmith, Brookline, Massachusetts
August 20, 2013

Some claim that design is a rational process, the result of a thoughtful, logical, and ultimately artful response to the programmatic requirements of the project at hand. But what is the program? Who decides?

Elizabeth Greenspan, an urban anthropologist at Harvard, explores these questions in the recently published *Battle for Ground Zero: Inside the Political Struggle to Rebuild the World Trade Center* and, in a reading from her book, she highlighted the complex challenges of reconstruction. Within the context of visuals shown to illustrate location, street patterns, and images of graffiti and objects left by mourners and visitors worldwide, Greenspan outlined the conflicts and dynamics of the public/private partnership that would inform and frustrate the rebuilding of the site over 11 years.

Given the iconic nature of the towers, emotional and political struggles were shown in stark relief in the spring of 2002 during a public "town hall" dialogue at Pace University, organized by the Lower Manhattan Development Corporation to review six masterplans for Ground Zero. Four thousand attendees voted to reject all six plans, which had been commissioned by the Port Authority and LMDC, calling for images of something monumental with less commercial space, something better than politics and commerce. Years of conflict would ensue among the site's owners, major leaseholder, architects, the governor, and two mayors.

The question-and-answer period reflected the audience's diversity of interest. What was achieved by re-establishing some original streets? What was significant about 1,776 feet for the height of Daniel Libeskind's Freedom Tower? Prior to 9/11, how did Silverstein Properties become the leaseholder of the World Trade Center? Greenspan's responses, just like her book, represented a thorough history and critique of the balance between public and private ownership and the political and emotional conflict therein. Perhaps art *is* politics.

Donald J. Tellalian AIA, a principal at Tellalian Associates Architects & Planners, designed the Armenian Heritage Park in Boston.

ABOVE
The southern edge of Ground Zero's construction site, 2010. Photo: Erik Hess.

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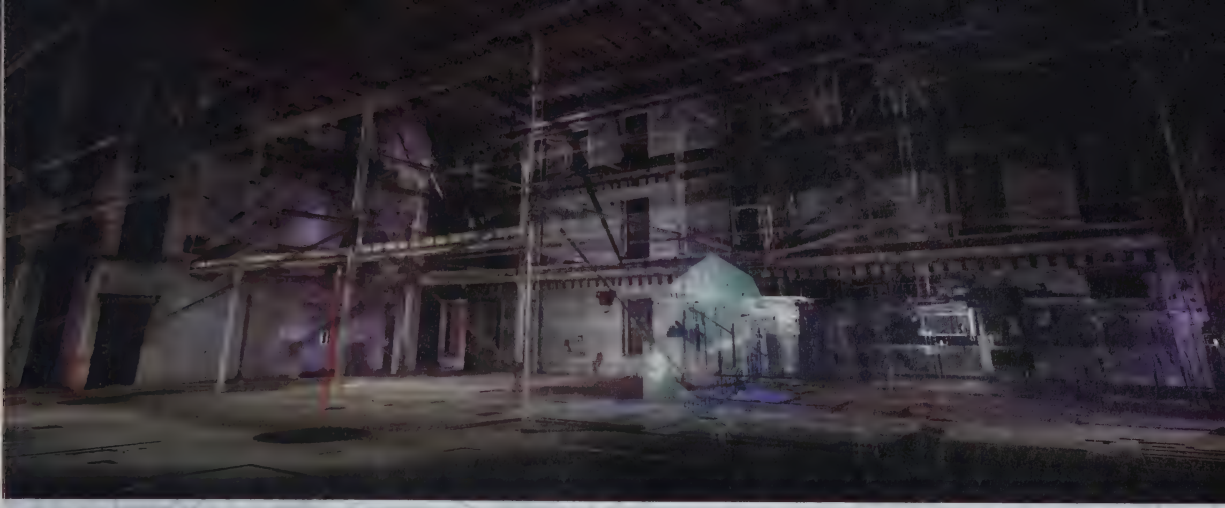
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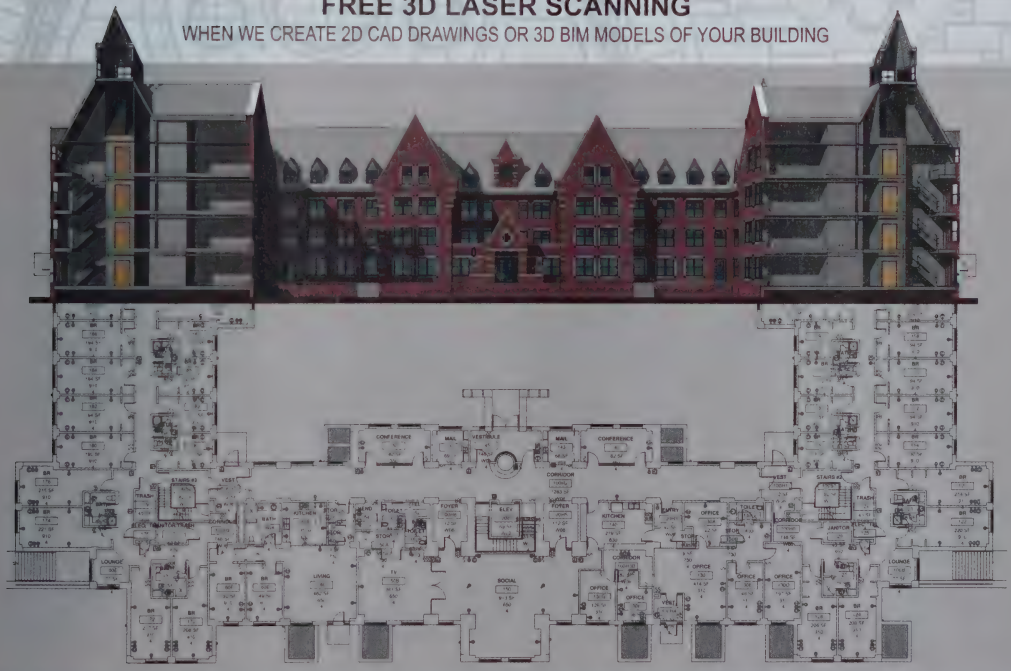
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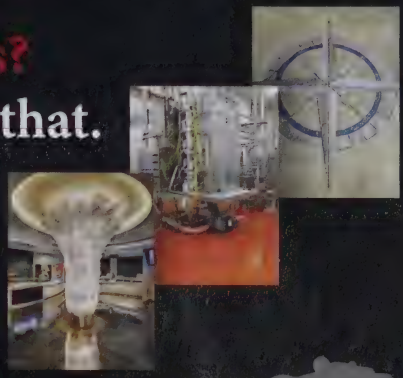


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The challenges of sea-level rise cross boundaries of all sorts: geographic, political, social, economic. Proposed mitigation strategies will also necessarily shift and overlap. Here, we present five case studies from across the globe that offer intriguing ways—some operational, some philosophical—to address the threats associated with climate change. Drawing on a research initiative focused on vulnerabilities in Boston, a team at Sasaki Associates developed these additional design-strategy icons to illustrate the layered approaches. They are adaptable, the better to meet the unique demands of each coastal community.

TROUBLED WATERS





Floating Buildings + Passive Flood Walls + Wet Floodproofing

BOSTON: BEWARE NOSTALGIA

by Steven G. Cecil AIA ASLA

The anticipated onslaught of rising seas and severe storm surges has grabbed media attention, spawning dramatic narratives about the urban disasters ahead. The science-based predictions are grim, raising specters of an additional 4 feet of storm-driven seawater flooding coastal cities by the end of the century.

In the recent past, we have formed urban-design and regulatory models around nostalgic visions of waterfronts as bustling civic and maritime edges, where an unspoiled environment meets the architecture of the city. But these approaches can become barriers to necessary innovation in the face of climate change.

Key state and federal regulations limit alterations of shorelines and piers, as though they were ideal configurations. We use the scale of 19th-century waterfront buildings as the standard of measure. We set aside some areas for waterborne commerce that has practically vanished. We reward development of high-value uses that draw people along the water's edge in areas of high risk.

Many current policy discussions call for barrier strategies to save the city waterfront so that the future looks like this imagined past. But we need some historic perspective and design-based optimism before we take this defensive view too far. Urban waterfronts—Boston's harbor is a prime case in point—have been remarkably successful over the centuries precisely because of bold design and engineering. We have redesigned and rebuilt urban harborfronts time and again to adapt to changes in economic, transportation, and civic priorities.

Pull out any of those great books with maps and drawings showing Boston Harbor's evolution, such as *Mapping Boston* (Krieger, Cobb, Turner) or *Gaining Ground: A History of Landmaking in Boston* (Seasholes). They illustrate astonishing time-lapse leaps of urban change.

Look at the earliest views of the harbor. Boston was not, in fact, a great deepwater port at the start; mudflats dominated the water's edge, and large ships sat on their hulls in the muck at low tide. The pattern of deepwater docks and finger piers around the harbor emerged only by knocking down hills and filling those flats. East Boston's edge bloomed with clipper-ship construction during an era of sail that lasted scarcely two decades. The shipyards vanished, replaced by gigantic new piers hosting the Cunard Line, a gateway for immigration. Hundreds of acres of mudflats were transformed into the South Boston industrial waterfront, with its Fan Piers fed by rail spurs.

By midcentury, the shipping was nearly gone, piers rotted, and most marine-dependent businesses disappeared. Highways and parking lots filled in the deteriorating gaps. Those were the bad old days.

Since then, we have shifted course entirely. But we must realize that we did not "rediscover" a waterfront that was long lost. Rather, we scrubbed up the mess with unprecedented environmental standards and then recolonized the waterfront with uses corresponding to the strengths of our economy. We now have residences, offices, hotels, restaurants, and parks perhaps unimaginable to our predecessors.

A few years back, the South Boston waterfront was branded as our Seaport District. Revised branding is underway—the Seaport is now Boston's Innovation District, successfully attracting science-based enterprises. We should think of all of our urban waterfronts as innovation districts, but from an even broader perspective: We need to reinvent the harbor and its borders through imaginative planning, architecture, and engineering based on emerging science and geared to the future. ■

Steven G. Cecil AIA ASLA has planned and designed waterfronts, ferry terminals, and harbor parks in Boston and throughout the country.

ABOVE
View from the harbor, 2007. Photo: Mark Brooks.

SEOUL: FLOOD THE ZONE

by Chris Reed ASLA

Chris Reed ASLA is principal of Stoss Landscape Urbanism and associate professor in practice of landscape architecture at the Harvard Graduate School of Design. His work focuses on water-based planning strategies and design projects from Milwaukee to Shanghai.

Water needs more space in the city. For many centuries, rivers, floodplains, and protective wetlands have been filled in or moved to make room for urban growth. This work was done with a mindset that once the water is taken away—often engineered out of sight—it would not come back.

But we know better now. Superstorm Sandy's impacts on the metropolitan New York coast, Hurricane Irene's severe flooding of inland rivers in Vermont, and the 1996 storm that pushed Boston's Muddy River into the Green Line tunnels (flooding Kenmore Station to 20 feet) all testify to this fact. Unfortunately, the engineering strategies used to control the water only aggravated the impact of these storms.

In giving back space to water, I don't mean to fully displace urban and social uses. In fact, reintroducing natural systems can and must bring new life and richness into the public realm. Fish parks, bobbing buildings, water plazas, canal streets: all can be designed to recognize both civic and hydrologic functions, while giving a nod to their watery origins. We can transform vacant land into new wetlands—whether within the city or at the edge. Stormwater detention basins, small-scale rain gardens, and seawalls can now be rethought and expanded into large-scale ecological parks that bring value to adjacent neighborhoods.

Perhaps we can go further, integrating water into the fabric of the city itself. Public plazas, waterways, and boulevards can be designed as floodable green infrastructures, creating new open-space connections that could also work as elevated escape routes in the event of an emergency. My core landscape studio at Harvard's Graduate School of Design takes these issues head-on, asking landscape architecture students to develop fully fledged urban strategies for a vulnerable coastal site that are finely tuned to the ecological and hydrologic dynamics in play, including the effects of storm surge and sea-level rise.

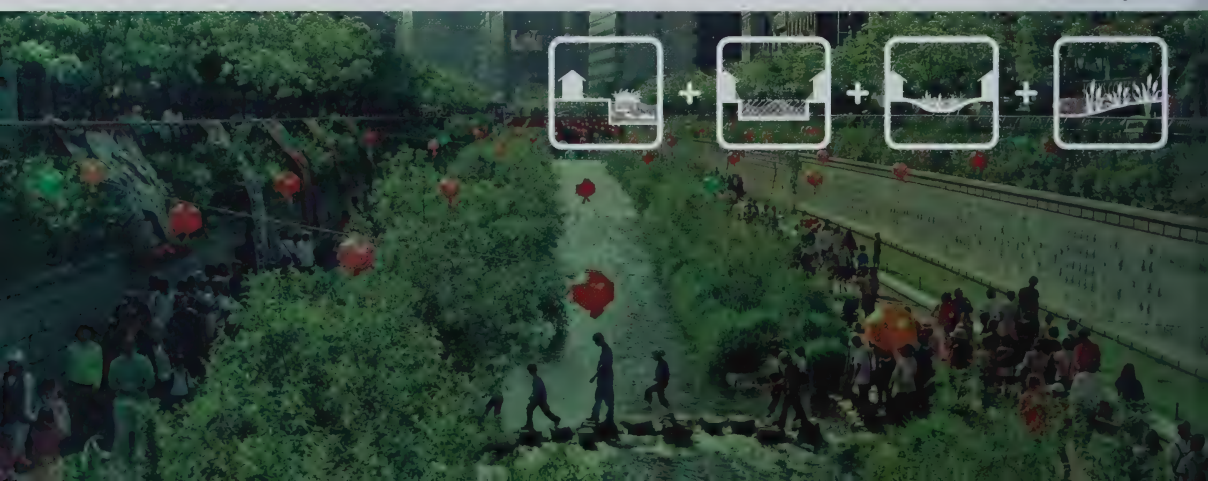
The Cheonggyecheon River in Seoul, South Korea, is a great example of this change in approach. Once covered by layers of roadway and highway, the Cheonggyecheon was uncovered beginning in 2003 and renovated as a new central riverfront in downtown Seoul. It is set below street level, in order to carry intense floodwaters during the rainy season. But it was designed primarily as a public space, with water plazas, riverwalks, and civic rooms all along it. It has become the heart of life in the downtown area, and it has catalyzed redevelopment of adjacent properties along its length, thereby further enhancing the urban fabric.

The project cleverly uses water constantly being pumped out from the city's subway tunnels, and it is set up to accept the treated effluent from a nearby sewage plant to maintain water flow throughout the year. City folks have flocked to it, but it is also great new habitat for all sorts of invertebrates and birds and fish—including carp up to 2 feet in length!

These are examples of how existing cities can be renovated to better live with water, while creating vibrant public spaces. Importantly, these strategies require a shift in thinking: We need to adopt an amphibious mindset. And they point to new coordinated, interdisciplinary, and collaborative roles that our public agencies can play in remaking the city. ■

BELOW
The Cheonggyecheon River, 2008. Photo: Michael Sotnikov.

Fish Parks + Canal Streets + Rain Gardens + Tidal Marsh System





Tiered Cities + Dikes + Wet Floodproofing

HAMBURG: RAISE THE CITY

by Donna Denio

We've all heard that Germany is light-years ahead of the United States in responding to climate change. Is it true, and, if it is, are there practices that can inspire our own choices?

I recently joined a delegation of 13 women leaders on a trade mission to Hamburg to find ideas and insights that can help Boston become more climate-resilient. Seven in our delegation knew one another through the organization New England Women in Real Estate, and we included four architects, an engineer, several planners, and two who craft or influence policy. We chose Hamburg because this harbor city has a raised environmental consciousness, and for good reason: The North Sea flood of 1962 destroyed 60,000 homes and took 315 lives.

The newest neighborhood in Hamburg—and currently the largest urban-planning project in Europe—is HafenCity, a 385-acre development with 6,000 residential units along with retail, tourism, and business uses that will replace a declining neighborhood along the Elbe River. Jürgen Bruns-Berentelg, CEO of HafenCity Hamburg GmbH, the master developer, described his team's priorities. "Each public tender has focused on social innovation and creative ground-floor uses because, in Hamburg, the social obligation of ownership is a foundational idea of society. If all you have to offer is a pot of money, go home and sleep."

In the early 1990s, with the harbor's prominence in decline, civic leaders began reimagining the sparsely populated urban dock area a half-mile from city hall. A visionary masterplan by a Dutch-German team, led by Kees Christiaanse/ASTOC, set the stage. The plan mandated that the entire area have the same level of flood protection as areas of Hamburg next to the dike, between 24 and 28 feet above mean sea level, depending on distance from the water's edge.

So HafenCity is tiered with a 30-foot difference in elevation. The lowest levels, closest to the water's edge, are designed to flood and are for pedestrians and bikes. The next level is for sealed storage space and underground parking, and the highest level—28 feet above mean sea level—is for buildings and major roadways for cars and emergency vehicles.

During seasonal peak-water conditions, plazas fill with water and become reflecting pools. Changes in paving material mark crosswalks and paths designated for pedestrians and bicycles. Benches and community spaces are cast into the backs and sides of ramps and steps, permanent structures that will not wash away.

The liveliness of the area is enhanced by the planning mandate that the ground floor of every building be community space. The parks adjacent to the waterfront are designed to attract people 24/7. People walk, bike, sit, spoon, read, feed the fish, and soak their feet in the water. This is no fortified city where the river acts as a moat.

Now about 50 percent complete, HafenCity has been nominated for the 2013 Urban Land Institute Global Award for Excellence. New York City is already embracing the HafenCity model. As reported in the December 2012 *Architectural Record*, planning guidelines for flood-prone Willets Point, in Queens, call for raising the entire site 14 feet above mean sea level, incorporating terraced public space at the water's edge.

Which waterfront areas in Boston could benefit from a tiered planning approach? Or will it take a flood? ■

Donna Denio

ABOVE

BANGLADESH: HONOR SIMPLICITY

by Jennifer Leaning MD

Jennifer Leaning MD,
[illegible]

BELOW:
[illegible]

As sea levels rise a predicted 3 to 6 feet by the end of the century, coastal and island populations in low-lying areas will bear the greatest brunt: more violent storms and the gradual inundation of agricultural and settlement areas. Among the most vulnerable places on the planet is Bangladesh, where half the population of 150 million lives in lowlands athwart the Bay of Bengal.

Tropical cyclones strike the Bangladeshi coastline routinely; very powerful ones strike at least every 15 or 20 years. In the last 40 years, faced with three extremely strong cyclones and massive population growth in the at-risk areas, the country can claim a somewhat heartening—albeit grim—record of declining storm-related deaths.

When Cyclone Bhola raged up the Bay of Bengal in 1970, with winds at 125 miles per hour pushing a storm surge of 27 feet inland for miles, it drowned an estimated 500,000 people. That was a different South Asian world in terms of technology (warnings only from ships at sea); governance (Bangladesh was then East Pakistan); and disaster planning (minimal attention, except to epidemic disease).

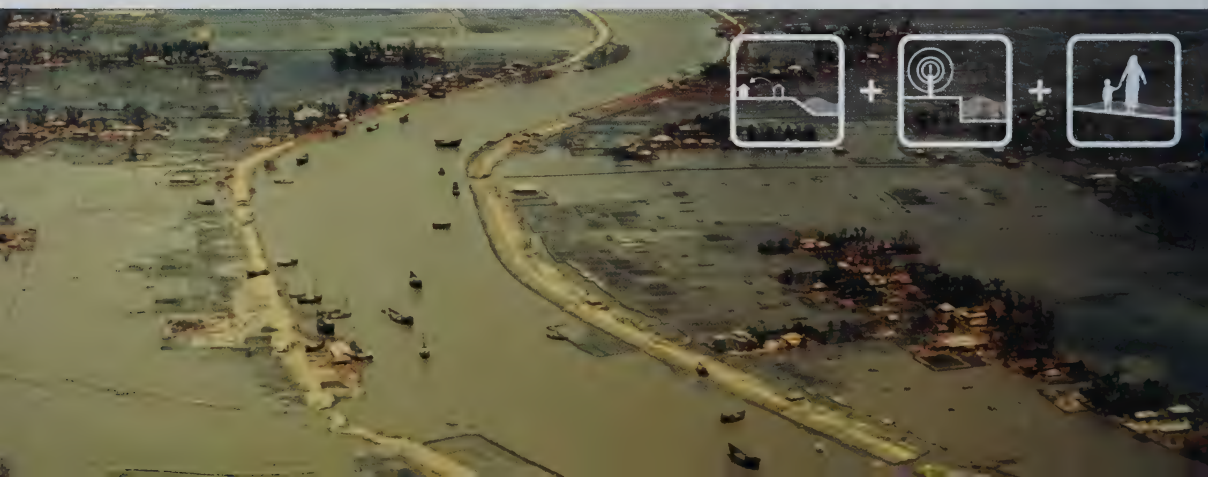
But the 1970 cyclone became blurred in public memory as citizens and leaders struggled to overcome the brutal 1971–72 civil war that created independent Bangladesh and forge a viable state. By 1991, the population had almost doubled, and the new generation, largely ignorant of 1970, paid little heed to the sparse and late warnings that Cyclone Gorky was upon them. Of similar strength and trajectory, Gorky resulted in an estimated 150,000 deaths.

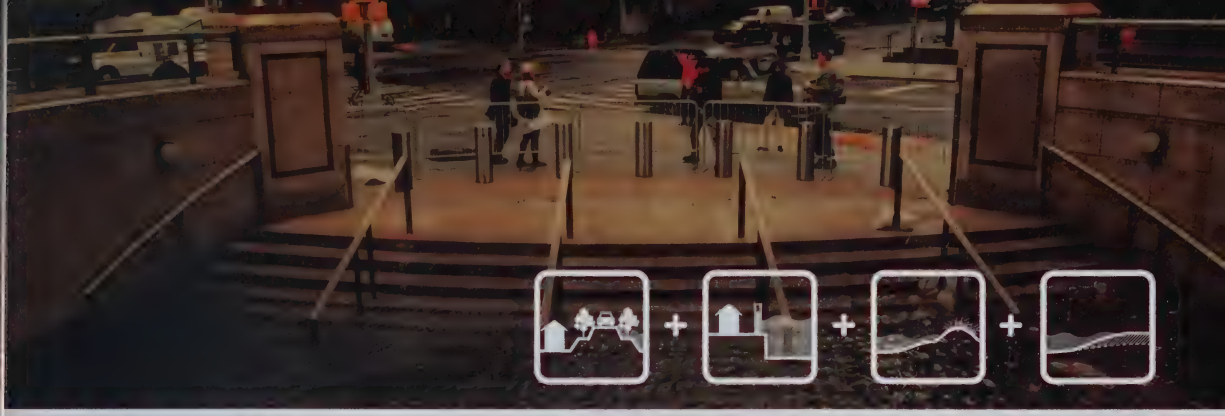
Then the country galvanized its resources to put a stop to this cycle of heavy disaster mortality. It undertook small but thoughtful population studies that yielded important findings: Women died in much greater proportions than men because they could not run as fast to get out of the way; because they did not know how to swim; because their saris and long hair got caught in the debris; because their upper arms lacked comparative strength to hold on to branches; because they were also trying to hold on to their children. The elderly and children had very high death rates for many of these same reasons. People did not want to leave their homes and belongings—particularly those who were most poor. The shelters were too far away and degraded by animal and human waste.

Armed with this information and spurred by public grief, the government invested heavily, building improved and more numerous shelters inland and acquiring the best technology for early storm warnings. Local nongovernmental organizations began to teach families and women self-salvage tactics (tie your hair up in your sari; pay close attention to the warning signals). In 2007 Cyclone Sidr struck with very similar force and created similarly strong storm surges; yet this time, the storm-related deaths numbered 5,000.

As in Bangladesh, local adaptation linked to concerted government planning may prove a strong pillar in the world's response to impending sea-level rise. Yet more profound adjustments, such as out-migration, may be necessary for some islands and coastal flood plains. What makes Bangladesh special is that for decades the entire society has focused on how to mitigate its ever-present danger from the sea. ■

Inland Shelters + Storm-warning System + Self-salvage Tactics





Multipurpose Levees + Passive Flood Walls + Dune Landscape + Beach Nourishment

NEW YORK: THINK COASTAL, PLAN LOCAL

by Jane Amidon

Cities and coasts are like peanut butter and jelly, like Sonny and Cher—partnerships that were mutually beneficial in the beginning but have become ripe for reinvention. Peanut allergies and acrimonious divorces happen; extreme storms and floodwaters rise. For vulnerable urban waterfront zones, locations that once made great sense economically now present formidable questions. How much is at risk? What needs to change? How long will it take?

According to a study by the Organization for Economic Cooperation and Development, the top five global cities economically exposed to coastal flooding—Miami; New York–Newark, New Jersey; Kolkata, India; Guangzhou, China; and Shanghai—are forecast to have more than $12 trillion in combined coastal assets at risk by 2070. The imperative of climate-change adaptation calls for not just protection and remediation but a wholesale redefinition of the land-water interface.

In response, several coastal cities have shifted gears from *what should be* planning modes to a data-driven process of understanding *what might be*. Alternatives-based scenario building is gaining ground on masterplanning, particularly in the uncertain terrain of urban waterfront districts. As with the strategic shift in the healthcare industry from treatment to prevention, urban coastal management is moving from top-down prescription and hard infrastructure toward the bottom-up potential of multipronged resiliency models.

One such model is New York's PlaNYC 2030 and its related initiatives, such as the *Stronger, More Resilient New York* strategic framework, released in June 2013 after Superstorm Sandy. Much of this work involves rearranging the city's relationship to water. Aimed at diverse players, from politicians to designers to the general public, these tools offer hyperlocal and flexible goals, practices, and parameters instead of hard metrics. They respond to regionally specific conditions rather than conveying universal rules of thumb. Indeed, a fascinating and frightening lesson from Sandy was the varied impact on the coastline wrought by seemingly minor differences in orientation, wind direction, tidal cycle, soil type, and degrees of urbanization.

Since Sandy, a growing body of science, advocacy, and funding in so-called coupled human and natural systems (CHNS) is encouraging municipalities to approach coastal resiliency at the neighborhood level, couched within systems-scale research and analysis. The *Stronger, More Resilient New York* report, for example, reveals that while some aspects of the superstorm were long predicted, such as flooded subway tunnels, officials did not anticipate the devastating intersection of multiple systems failures: rail, road, electricity, food, and fuel supplies.

In lower Manhattan, investigators learned that despite current development patterns, flooding of roads, parks, and more than 130 million residential and commercial square feet followed historic inland topography; water seeks its level, and these floodwaters sought long-disappeared rivers, canals, and marshes. As a result, the framework outlines first-phase coastal protections such as multipurpose levees integrated with development and transit improvements, passive flood walls with coastal edge-conservation measures, and building code and insurance amendments.

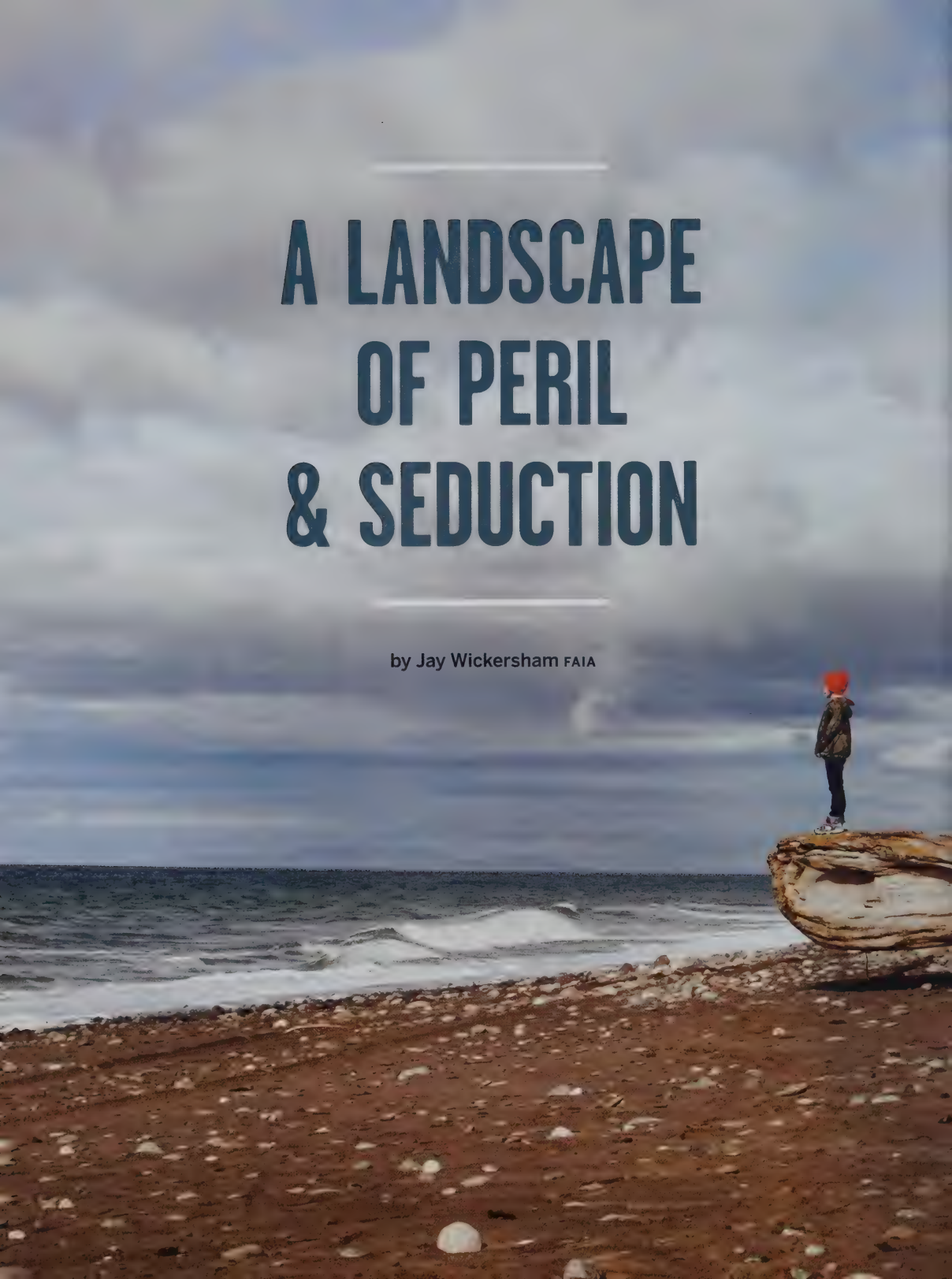
All of this points to the city/region as the locus of innovation in response to sea-level rise and powerful storms. Recognizing the coastal metabolism in coupled human and natural systems will allow other waterfront cities to develop comprehensive "user's manuals" such as PlaNYC. Although it is no longer possible for Sonny and Cher to reunite, this generation's cities are clearly re-embracing their waterfronts, and cities such as Boston should continue to rediscover their intrinsic coastal attributes as an engine for managing environmental vulnerability and economic vitalization. ■

Jane Amidon is a professor and director of the urban landscape program at Northeastern University. She lectures and writes on modern and contemporary landscape and urbanism.

ABOVE
Water floods the Plaza Shops in Manhattan after Superstorm Sandy, 2012. Photo: Allison Joyce/Getty Images.

A LANDSCAPE OF PERIL & SEDUCTION

by Jay Wickersham FAIA



The land may vary more;
But wherever the truth may be—
The water comes ashore,
And the people look at the sea.

They cannot look out far.
They cannot look in deep.
But when was that ever a bar
To any watch they keep?

—Robert Frost

I FOUND MY FIRST VERSION OF THE COAST as a young child, during summers in the Cape Cod village of Woods Hole. My grandparents' house there was a late but handsome example of the Shingle Style, designed in 1934 by the New York firm Shreve, Lamb & Harmon, the architects of the Empire State Building. It had the long horizontal lines, capacious shady porches, and commanding coastal views that exemplified the style.

But it was the beach that really introduced me to architecture and city planning. With a few handfuls of sand, I could channel water into estuaries and basins and canals, or transform water into land: quays and islands, towered and walled, and populated by confused hermit crabs. Even at this child-sized scale, the beach taught another lesson, which we should have taken more seriously. At night the tide obliterated our work, sweeping the sand clean for a new cycle of development and construction. Along the coast, we should have learned, architecture's claims for permanence are always at risk.

Back then the dangers of the coast seemed remote, anomalous, unreal. Each summer in Woods Hole I read and reread a book about the 1938



PREVIOUS PAGE
Dungeness Spit, by Jesse Burke, 2011. Courtesy ClampArt, New York City.

hurricane. I would ask to hear stories about the storm: how salt crusted the windows, how the neighbors' front door blew open and it took four men to push it shut. It never really registered that a man and a woman had drowned in the long house with blue shutters that we drove past every day on our way into town. A hurricane seemed a pleasurable, if slightly shivery, natural spectacle.

Another unnerving summer pleasure was the science-fiction novels of the English writer John Wyndham. In *The Kraken Wakes* (in the US, *Out of the Deeps*), published in 1953, aliens from Jupiter fly their spaceships down into the deepest trenches of the oceans, from which they emerge with amphibious vehicles and grasping tentacles. When humans start fighting back along the coasts, what do these world-destroyers do? They figure out how to melt the polar ice caps, triggering rising sea levels that drown every coastal city around the world. Wyndham's vision of London's flood barriers collapsing, of dark water lapping around Manhattan's blacked-out skyscrapers, seemed more fiction than science.

Environmental science has transformed our view of the coast and its allure. With the storms and sea-level rise caused by climate change, we now understand that this varied and beautiful landscape is a changeable and often dangerous place to live and build. Instead of architecture's traditional claims for permanence, can we imagine a coastal architecture that is lightweight, movable, adaptable—as impermanent as the coast itself?

That we are currently in the process of reinventing our understanding and use of the coast—harbor barriers, reconstructed salt marshes, floodable buildings, wind turbines—is in fact not all that new. Just as the coastline itself is constantly being reshaped by the ocean, so too are the ways we think about it and use it. The notion of the coast as pleasure ground (and prime real estate) is a relatively recent phenomenon: In different ways, the Shingle Style, Coney Island, and Miami Beach are some of its great exemplars.

Before that, the coast was a workplace. The emblematic coastal building is the lighthouse; although today its image has romantic connotations of beauty and solitude, it was originally a utilitarian structure. The sea was once a pasture for fish and a highway for trade. Coastal forests were cut down for shipbuilding; sheep cropped the hills to bare sand. New England harbors, like the one in Woods Hole, stank of fish heads and whale oil and guano factories that processed cormorant droppings from the rocks. The coast offered many different resources to exploit: It was an early industrial zone.



Hanging in my office I have a 1964 bird's-eye map of Manhattan Island, which shows a fleet of ocean liners in the Hudson, sailing upstream or downstream or moored at the piers. Manhattan was still a working port. The cluster of Wall Street skyscrapers at its southern tip looked out to sea, each one as improbable and immense as the great lighthouse of ancient Alexandria. But within a few years the liners had left; the Hudson piers became parking lots and then parks; the Fulton Fish Market moved to the South Bronx, replaced by a shopping mall. In our cities too, the coast as industrial workplace has given way to the coast as developable real estate.

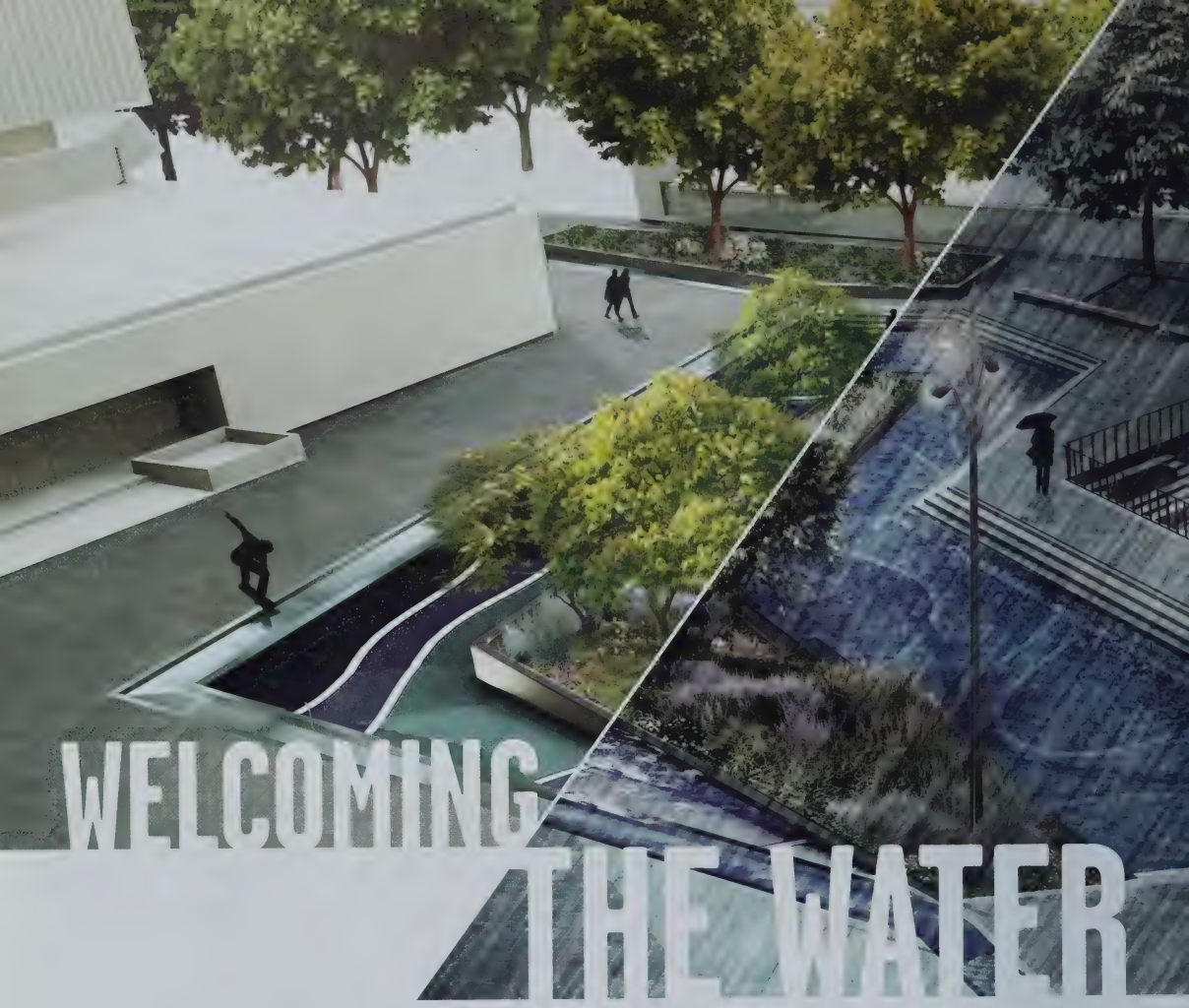
As we accept impermanence in our coastal architecture, we also need to accept the dual nature of the coast, as workplace as well as pleasure ground. The coast is New England's richest potential source of renewable energy, where we can harvest the wind and the tides. Now that the decade-long political and legal battles over the proposed Cape Wind project in Nantucket Sound have ended, the project is moving into construction. Within a year or two the coastal sea will start to be inhabited by benign metallic water-dwelling aliens, blindly turning to sniff out the sea breeze. If the lighthouse was the old characteristic structure of the coast as workplace, its new symbol will likely be the wind turbine.

It's easy to caricature battles over the future of the coast, like the fight over Cape Wind, as struggles between sound, science-based policy, and the vested interests of money and power. But it's not that simple. The coast is also a landscape of peril and seduction. As Robert Frost's lines suggest, the coast is domesticity, at the edge of a turbulent void. Workplace or pleasure ground, wilderness or building lot—there are many different versions of the coast, some shared and some deeply personal.

When you walk along Commercial Street in Provincetown, at the tip of Cape Cod, you'll notice that many of the older shingled cottages wear a small blue plaque with an iconogram of a house on top of a boat. These structures were originally located at Long Point, an exposed sand spit on the other side of the harbor. Back in the 1840s, when Long Point's inhabitants got tired of battling storms, they picked up their houses, loaded them on barges, and floated them to higher and safer ground.

Architecture doesn't have to conform to our expectations about how to make buildings and what to do with them over time. The coast insists that we be creative. History may be dropping hints about our future. ■





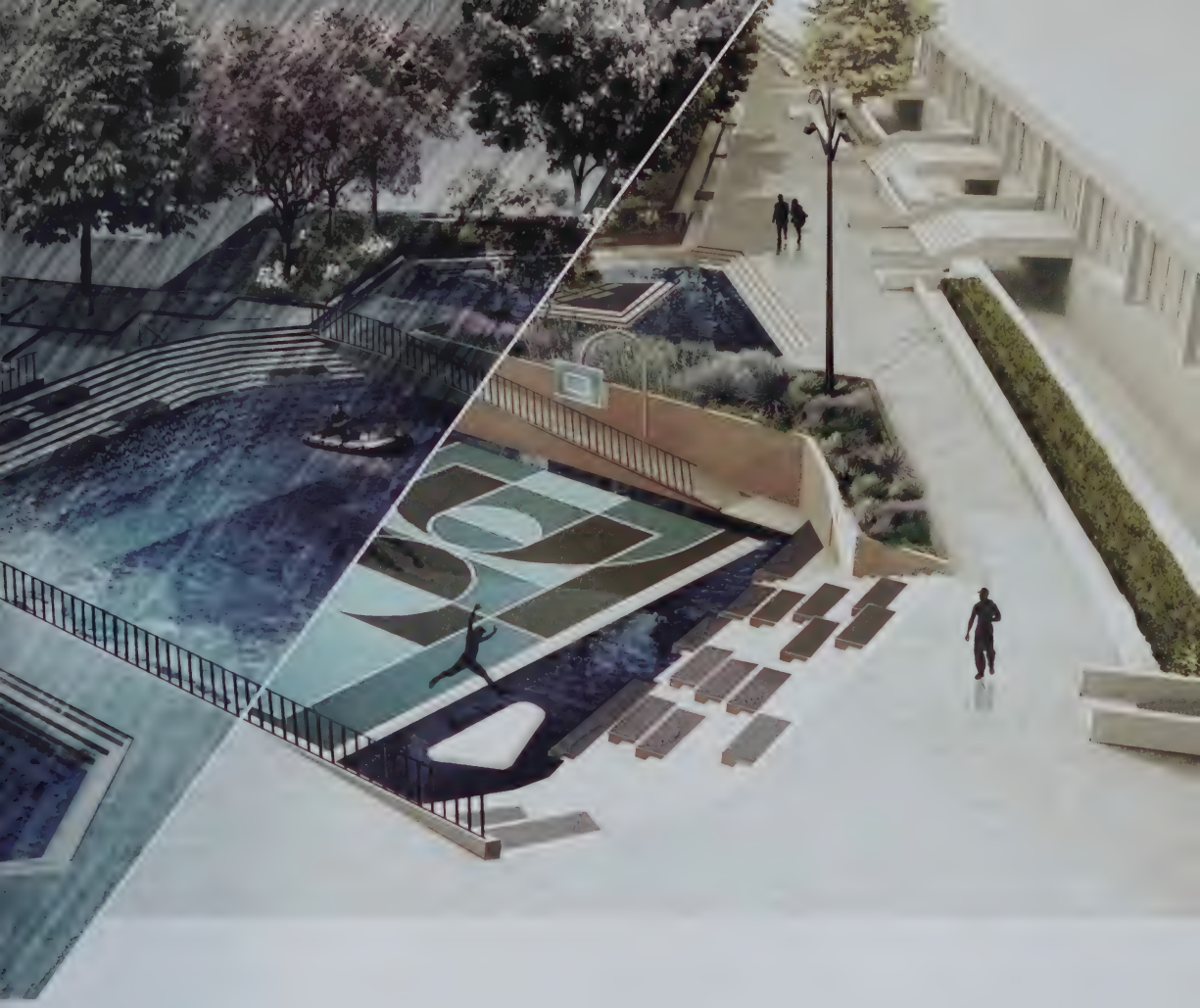
WELCOMING THE WATER

Hardscape and green measures offer solutions

by Wendi Goldsmith

Climate mitigation is all about carbon, climate adaptation is all about water; the two become connected when plants and soils capture carbon and manage water. For years, we've been handling water irresponsibly—displacing it, misusing it—and in the process, we've caused most of our own water-based problems. With scientists generally agreeing that it's too late to avoid the impact of climate change, and with increasing coastal flood risks posing the greatest threats to cities, architects and engineers can step up to help raise awareness of what changes are possible—and, more important, smart.

Given that the built environment is a major contributor to greenhouse gas emissions and vulnerable to climate-change impacts, designers have interests and responsibilities related to the topic. They also have options when figuring out how to respond to rainfall



that overwhelms drainage systems as well as to flooding by coastal storm surges. Green infrastructure—ecologically functional measures designed to handle stormwater, including green roofs, bioswale systems, rain gardens, created wetlands, and elements that include vegetation combined with hard structures—can absorb and store rainfall, can shield community investments, and helps make us safer. Picture swaths of green space threaded through urban areas, connecting waterfronts, neighborhoods, parks, plazas, street margins, and rooftops. These elements not only make cities more attractive and livable, but also can reduce flood risk by absorbing water, wave energy, and even carbon.

In essence, the difference involves keeping water in contact with plants as early and often as possible, not dropping it out sight, out of mind, and out of reach of the root zone. When plants are able to interact with water, they go about their normal business of using the sun's energy to photosynthesize and convert carbon dioxide in the air, accumulating biomass as plants grow and soils enrich organic matter. Simultaneously, green infrastructure provides the mechanisms for temporary storage and processing of water, relying on vegetation and soil's biogeochemistry to cleanse pollutants common in runoff, and also prevent peak water flows that cause flooding. The challenge is to make changes early in design to allow the most cost-effective and beneficial solutions for the site. Small changes to constructed sites can provide benefits on a large scale. The following projects, for which Bioengineering Group designed measures that use green infrastructure, have achieved measurable and cost-effective flood risk reduction while harnessing solar radiation and

ABOVE
Renderings show three stages for Watersquare Benthemplein: a dry sunny day, a rainstorm, and after the storm, designed by De Urbanisten, Rotterdam, the Netherlands.

MORE ONLINE
bioengineering.com/projects

natural processes, mitigating the problems associated with carbon and water.

In post-Katrina Louisiana, the Army Corps and stakeholders came to recognize that hard infrastructure could perform better when surrounded by healthy coastal wetlands and protective landforms, such as barrier islands. The Greater New Orleans Hurricane and Storm Damage Risk Reduction System is the nation's first regional-scale infrastructure system that factored in trends and uncertainties surrounding future climate change and extreme land subsidence. Wetlands, beaches, and dunes were constructed using dredged sediments, often with reinforcement by "hard" materials. Levees, flood walls, and the world's largest surge barrier serve to keep damaging salt water away from communities and sensitive vegetation. The seamless integration of green and hard elements blurs the boundary between natural and built. It also harnesses natural processes to support and maintain the coastal region, and to best adapt to future changes and impacts. Together, natural landforms, healthy ecosystems, and built structures are capable of mitigating storm damage based on multiple lines of defense, delivering sustainable infrastructure solutions that many cities facing the need for climate-change adaptation can emulate.

Green infrastructure is fast becoming a standard for considering how to invest in reducing risk and improving quality of life.

Two Massachusetts communities serve as paradigms for creative solutions to water management. Lexington took on the problem of stormwater management while increasing its use of green infrastructure. In 2009, the Department of Public Works completed a project to manage stormwater on site, thereby avoiding problems related to flooding not only new public buildings but also surrounding areas. Designers replicated predevelopment hydrology by deploying an array of measures: Green roof and porous asphalt were used for runoff minimization; roof runoff was harvested and reused for street-sweeping vehicles; and rain gardens, bioswales, and created wetlands allowed water to harmlessly evaporate or replenish aquifers. Rather than conventional piped stormwater systems that shunt runoff somewhere else, the site stewards water resourcefully, supporting ecosystems and storing water for extremely large storms (up to the 100-year event).

In 2001, officials in Cambridge accepted a creative proposal from designers for a solution to stormwater overflow pipes within Olmsted's Emerald Necklace park and greenway system. Considered the crown jewel of the Boston Harbor cleanup project, the integrated solution modified traditional piping and added wetlands plus other habitat features and public amenities. By rerouting runoff into an ecologically engineered basin in the Alewife Reservation, stormwater is effectively separated, stored, treated, and released with flow patterns that address chronic local flooding as well as water-quality requirements. This natural approach is expected to store carbon and educate park-goers for generations to come.

To account for worsening storms, sea-level rise, and a shifting landscape, the New Jersey Department of Transportation tackled replacement of an aging bridge and causeway connecting the barrier island community of Ocean City to the mainland. The Jersey Shore community sits on the front lines of coastal impacts and lacked suitable infrastructure for evacuation or emergency services during past storms, let alone future scenarios. From securing bridge foundations to elevating the entire roadway, stabilizing and restoring associated wetlands, the engineering team evaluated trends, risks, and potential solutions to optimize design. Bikeways and an integrated visitor center promote public access and help tell the story of the project and its many values. Completed in 2012 shortly before Superstorm Sandy struck the region, the project withstood impacts and has become a model to guide others.

In the future, green infrastructure will be applied in a scale greater than previously seen to address the challenges of climate change. It is already fast becoming a standard for communities considering how to invest in reducing risks and improving quality of life because it attractively combines conventional structural measures with green solutions. This joint approach is both necessary and also desirable for reducing vulnerability related to sea-level rise, land subsidence, increased storm intensity, aging infrastructure, and other threats. In the microcosm, green infrastructure can soften the effects of direct exposure to destructive and erosive forces of oceans and rivers, buffering structures unable to withstand full impacts. At the macrocosm level, large-scale natural systems such as wetlands, oyster reefs, and dunes are crucial for the stability of fragile or dynamic landforms, which in turn support ecosystems as well as human communities.

As we face the future, these systems will help keep threats at bay, both outside our cities as well as within them. From Dutch "watersquares" that offer public gathering zones capable of flood storage to Mayor Michael Bloomberg's proposed multipurpose levees along New York City's new Seaport City waterfront, novel approaches will reduce hazards while increasing awareness about the ever-closer relationships between people, infrastructure, and rising tides. ■

VENICE ON THE CHARLES? by Julie Wormser

Boston's waterfront was built to withstand all but the worst storm flooding. Yet with sea levels expected to rise up to 6 feet by 2100, children alive today may well live to see the ocean breach historical seawalls twice a day, every day, at high tide. Flood control has historically consisted of building higher and higher seawalls and levees to keep water out. What if, instead, we incorporate the rising ocean into a manageable component of our urban landscape?

The city's design community has an extraordinary opportunity to partner with civil engineers and emergency-response experts to preserve our access to the waterfront while preventing catastrophic flood damage to our neighborhoods and infrastructure. An analogy is our response to the September 11th attacks. Early security barriers were effective in protecting buildings but were ugly and socially alienating. Over time, these concrete barriers were replaced by equally effective bollards that served as seats or even public art.

The concept of "living with water" combines excellent urban design with flood control to maintain livable cities. It hinges on:

- Focusing on "resilience" over "resistance" where possible. Resilience emphasizes strategies to recover quickly and relatively inexpensively from flooding.
- Creating a varied surface topography within Boston's low-lying neighborhoods. Below-grade "floodable zones" could serve other purposes such as great social spaces during dry periods.
- Setting building codes and capital investment strategies to maintain vibrant cities in the short- to mid-term while planning for managed retreat to higher ground, whether inland or above street level.

Cities around the globe have embraced design solutions that channel water in effective, creative—even delightful—ways. Just north of Tokyo, for example, an underground flood-diversion facility prevents overflow of major waterways and rivers during rainy seasons; its main containment tank is also a tourist draw because it resembles a temple and has been used in movies and TV shows. Could Boston's design community come up with its own multipurpose solutions? For example, is there a side street or two in the Innovation District that could become a Venice-like canal one day to keep the rest of the neighborhood dry? Could the below-grade East Boston Greenway be extended westward to keep Central Square businesses from flooding while providing additional green space for the neighborhood? Could the 40-mile HarborWalk be a more effective—and beautiful—first line of defense against coastal flooding?

Let's hope these concepts become part of the vernacular of resiliency planning so panic doesn't dictate design and ruin Boston's urban vitality.

Julie Wormser is the executive director of The Boston Harbor Association, a nonprofit focused on economic development, public access, and sea-level-rise adaptation.

MORE ONLINE

Preparing for the Rising Tide, co-written by Julie Wormser, is available for download at www.tbha.org/work



Could the HarborWalk (shown here along Fort Point Channel) be part of a first line of defense against coastal flooding? Courtesy the Boston Harbor Association.

WASH 'N' DRY CITY

by Tim Love AIA and Elizabeth Christoforetti



Rather than an elevated and defensive city, what if our plans for urban resilience increased permeability on both the X and Y axes?

Almost everyone now agrees that rising sea levels and increased storm frequency are coming to coastal cities, but architects and urban designers have been less responsive than environmental scientists and planners. Why? Because the generally held principles of the "walkable city" don't jibe with a city of elevated buildings. One can almost picture Jane Jacobs organizing a picket line to hold back the water.

Our existing historical urban cores pose an even thornier question. Do we abandon central Boston for higher ground, thus letting Boston "attenuate" back to a natural state, or build dikes and floodgates to hold nature at bay—at least for a while? One solution is apocalyptic, the other requires a level of public investment not seen since the Johnson administration. These extreme scenarios can't be the only solutions.

We are offering a third way—let's call it "Wash 'n' Dry Urbanism"—based on a strategy the Venetians have been using for centuries to cope with the city's annual high-water events. People and seasonal floods can move freely through buildings. The ground itself guides floodwaters across absorptive, sponge-like landscapes and into subsurface cisterns. This retrofit strategy for buildings, streets, and urban landscapes encourages a larger percentage of the city to be publicly accessible and requires new forms of retail and events to occupy these Wash 'n' Dry spaces.

Gary Hilderbrand FASLA, Meera Deean, and Scott Geiger contributed to this graphic.



The stylized high waters are inspired by Katsushika Hokusai's 19th-century print, *The Great Wave at Kanagawa*.





CASTLES MADE OF SAND

The legal and ethical quandaries of rebuilding

by Jerold S. Kayden

The story is at once heartrending and predictable. A Nor'easter or hurricane drives rain and surging ocean and river water onto coastal land, devastating homes, businesses, public infrastructure, and people. Some lives are lost. Many more are upended. Displaced homeowners and businesspeople seek temporary and permanent aid of all sorts from governments and charities. The local dateline for the story could be Plum Island, Scituate, or Cape Cod. Boston may be next.

For decades, it has been an article of faith that, at least when it comes to homes, owners should be able to rebuild exactly in place, often with financial help from the government to cover some or all of the costs. How could it be otherwise? Absent erosion, the land is still there, owned as private property, waiting for its value to be renewed through resurrection of the home. Americans have endorsed an implicit contract between harmed individuals and society. When one of us is hurt, especially in a natural catastrophe where our own "agency" is not implicated, all of us want to help the victim. "There but for the grace of God go I" captures the spirit. The bigger the natural disaster, the greater the damage, the more the public help, it would appear.

Suddenly, however, this decades-old narrative is under pressure from, of all things, the weather. Climate change and its discontents have rendered the landscape of coastal areas especially problematic, from not only the effects of water but also politics and policies. Storms are no longer perceived as purely providential. Scientists predict that, with sea-level rise in the offing, coastal areas will face floods more often than before, with potentially devastating consequences to people and economies.

Debates swirl around the appropriate response: Coastal individuals, cities, and regions should *armor* themselves against future floods with hard infrastructure. Structures should be more *resilient*, able to flood and rebound in subsequent days and weeks. The built environment should, literally, *elevate* itself above the fray. The sounds of *retreat* from vulnerable areas are now being heard. Even the idea that private owners located in flood-prone zones should pay to stay is on the table.

Post-Katrina, post-Sandy, the shock of major flood events has worn thin, giving rise to sentiments that once would have been seen as cold at best, monstrous at worst. Put argumentatively, why should government bail out private individuals who have chosen—yes, chosen—to stay in harm's way? Put more argumentatively, why shouldn't government restrict or fully remove the choice of staying in harm's way, given society's humane inability to say no to help and bailouts in the throes of after-flood misery? This is where the smart writer puts down his pen and moves on to the next assignment.

For some, the evocation of private property rights, whether framed legally, financially, politically, or morally, is the only point to the discussion. But the right of individuals to use their property in any way they wish is pure fantasy. For centuries, the venerable common law of nuisance—*sic utere tuo ut alienum non laedas*—has restrained owners from using their property in ways that unreasonably interfere with a neighbor's use of his or her property. Modern-day zoning and environmental laws have stretched restrictions placed on owners well beyond the bounds of nuisance concerns to promote and protect the public health, safety, and general welfare.

Policymakers are now considering laws that would impose new and costly obligations on owners in flood-prone areas. New or rebuilt structures would have to elevate themselves on piles or stilts. Expensive dry and

OPPOSITE Sand marks the floodwater line on a house in Long Beach, New York, after Superstorm Sandy. Photo: Jason DeCrow/AP.

wet flood-proofing standards would become norms in building codes. Mechanical systems that power buildings would now have to locate themselves on upper floors.

Geographic restrictions are no longer beyond the pale. The national government introduced revisions in 2012 to its flood insurance program, and the notion that government should provide flood insurance at below-market-rate premiums to owners who build and rebuild in unambiguously vulnerable areas may finally have worn out its welcome. It only took close to 50 years. In New York state, Governor Andrew Cuomo has proposed that government buy out owners whose homes have been destroyed by Superstorm Sandy. If an owner refuses, one imagines, the state could exercise its power of eminent domain and force the issue.

The holy grail of geographic restrictions, whether imposed through so-called rolling easements or other technical methods, is the outright prohibition of building or rebuilding in flood zones *without financial compensation*. The politics of this approach is one thing, the constitutional validity another. The United States Constitution's Fifth Amendment states that government may not "take" private property for a public use or purpose without paying just compensation. The public purpose here is clear. The massive efforts of emergency responders, aid workers, and other government employees during and after an event engender obvious costs on society. Even if endangered individuals themselves can retreat prior to a storm (and not all do), they expect, even demand, that society help them out afterward, and a humane government cannot say no. Public policies designed to mitigate these costs (and temptations), including ones that take homes and their occupants out of harm's ways *before* the next harm strikes, belong in the discussion.

The question is who pays, and whether government is constitutionally required to pay homeowners full, fair market value for their properties if it prevents them from using their land for a house or business or otherwise imposes onerous restrictions on building.

Laws that require owners proposing new structures to meet higher standards, or not receive development permission at all, are likely to survive legal challenges. The United States Supreme Court reiterated in this past June's *Koontz v. St. Johns River Water Management District* case that government may, indeed, say no to development or say yes with conditions—so long as



the restrictions are truly related to articulated public purposes and not overly demanding.

Laws that require owners to fortify their existing structures, even if they impose substantial costs, are also likely to pass constitutional muster. Think about laws that require installation of sprinklers or smoke detectors in buildings. Whatever public hesitations there may be about enacting such *ex post facto* laws—and surely the ability of an owner to absorb the costs is one of them—their constitutional foundation is on firm footing.

The toughest question is whether government may ban owners from building or rebuilding altogether without compensation, leaving the owner with the land and little else. In general, if government regulation fully denies an owner all use of his or her property, then the rule has been to compensate. That was more or less the case in the Supreme Court's 1992 decision in *Lucas v. South Carolina Coastal Council*, where David Lucas had purchased two parcels of land on the South Carolina coast for close to a million dollars and wanted to build a home for himself on one plot and a speculative house on the other. At the time of purchase, the law allowed such development.

Shortly after his purchase, however, the South Carolina legislature enacted its Beachfront Management Act, creating a government agency with broad power to impose coastline restrictions. The newly formed Coastal Council drew a line in the sand, placing Lucas' parcels on the seaward side. That meant no development for Lucas, who responded with a lawsuit that ended up in the Supreme Court. The Court agreed that a denial of all use would normally constitute a taking requiring payment of compensation. Even then, however, the Court declined to apply its rule to all cases by carving out an exception for situations where the state, prior to enacting the new regulation, had in place property and nuisance laws that themselves would have limited an owner's right to develop his or her land.

Owner expectations in flood-prone areas will need to bend, slowly but inexorably, to the harsh downsides of a coastal location and a decreasing societal willingness to pay the tab when the inevitable strikes. Twenty climate-change hardened years later, a home in a flood zone may indeed be deemed a public nuisance. To get from here to there will not be easy, and transitional aid from the rest of us will be crucial, but a sea change in owner attitudes will need to become as much a reality as the sea change in water levels. ■





THE DEEP END

Sculptures by **Jason deCaires Taylor**

Jason deCaires Taylor balances the dualities of hope and loss in the haunting underwater worlds he creates. Populated by sculptures made with environmentally friendly materials that encourage coral growth, these moody tableaux offer glimpses into a world where art develops from the ocean's effect on man-made structures. Taylor's installations, designed to function as artificial reefs, increase marine life while allowing space for rejuvenation. The idea of fragility is a thematic underpinning to Taylor's work, and his watery museums are an attempt to capture the effect humans have had on our ecosystems.

Born in 1974 to an English father and Guyanese mother, Taylor grew up in Europe and Asia, where he spent his childhood exploring the coral reefs of Malaysia. He is the artistic director of the Museo Subacuático de Arte in Cancun, Mexico.

OPPOSITE
The Silent Evolution, depth 8m, MUSA Collection, Cancun/Isla Mujeres, Mexico.



RIGHT
Urban Reef, depth 8m,
MUSA Collection,
Cancun/Isla Mujeres, Mexico.

OPPOSITE
The Silent Evolution, depth 8m,
MUSA Collection,
Cancun/Isla Mujeres, Mexico.



ABOVE
Void, depth 4m,
MUSA Collection,
Salon Punta Nizuc, Mexico.



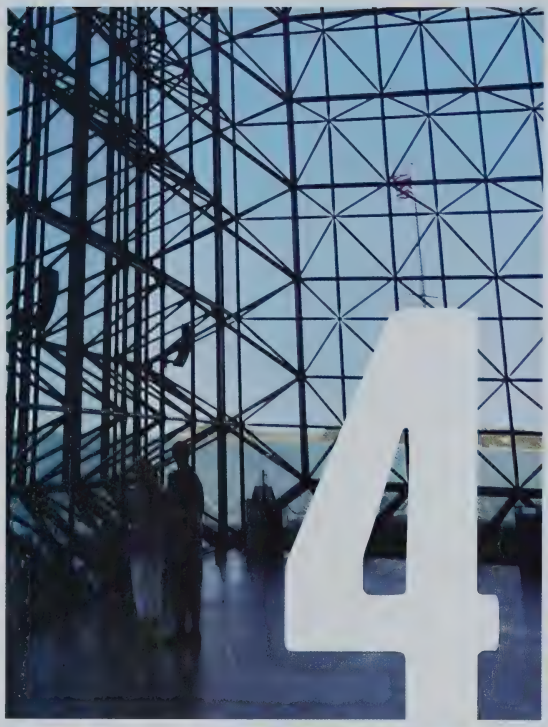


LEFT AND BELOW
The Silent Evolution, depth 8m, MUSA Collection, Cancun/Isla Mujeres, Mexico.

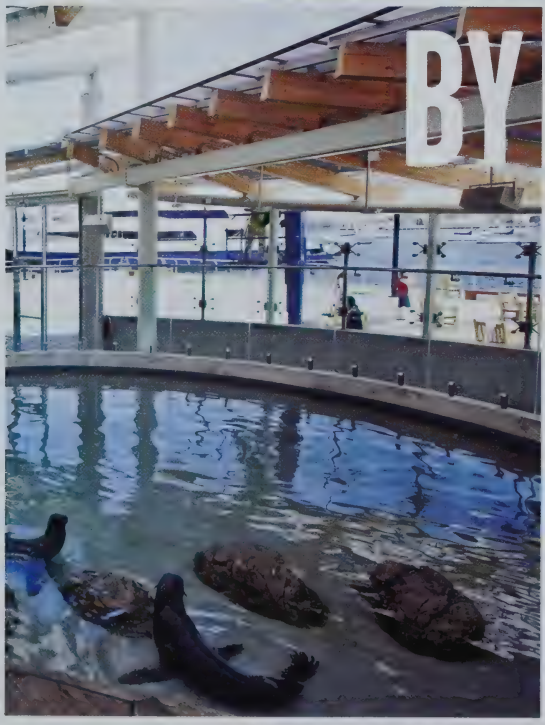


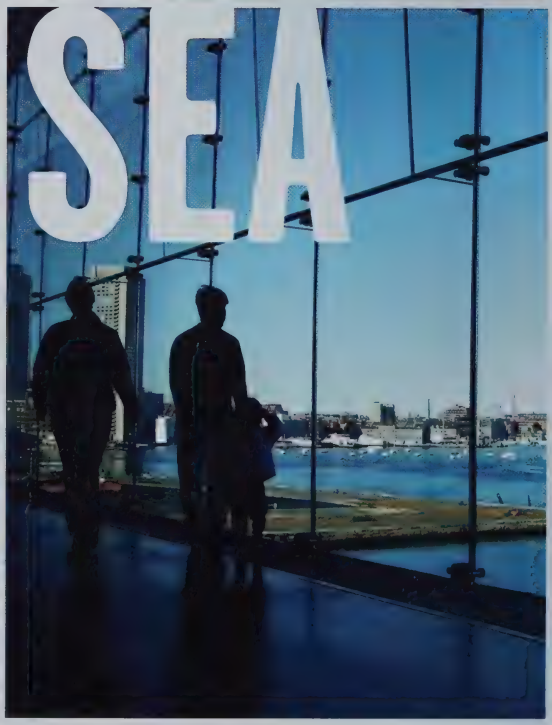
ABOVE
Vicissitudes, depth 5m, Grenada Collection, West Indies.

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4


IF


BY


SEA

Architecture responds to the lure of Boston's coastline

by Christine Cipriani

As recently as 1988, Boston Harbor was so filthy that George H.W. Bush used footage of its bobbing trash in an ad attacking his opponent for the presidency, Massachusetts governor Michael Dukakis. Fair or not, the ad focused the nation's attention on an environmental disaster that had festered far too long. Today, a survey of buildings on Boston's waterfront suggests that the pollution affected more than just water quality—it helped shape the city's architectural heritage.

From the Puritan age until a few years ago, Boston dumped sewage and industrial waste blithely into its harbor. In 1876, the city's first sewer system won a design award for pumping raw sewage out to sea with the outgoing tide; the problem was the incoming tide, which brought much of it back. Sewage treatment began in 1952. In the 1970s, when the US government mandated additional treatment for sewage in federal waters, Boston punted. Lawsuits were filed in the 1980s; and since then, with investments that include a new treatment plant at Deer Island, the water has finally come clean. In response, the city's architecture has followed its people in gradually turning its gaze toward the harbor.

A vintage jewel of maritime building is **Lewis Wharf** (c. 1838), designed by Richard Bond of granite, brick, and timber. Spanning the footprints of three ruined wharves including John Hancock's—which, in turn, once housed Paul Revere's silver shop—Lewis Wharf was a node of international trade and clipper shipping. After the Civil War, when trading and fishing waned, Boston's wharves were gradually neglected.

Suburban Modernist Carl Koch bought Lewis Wharf in 1965 and opened it in 1973 as a condominium and office complex. Known for his panelized family homes, all stained wood and natural light, Koch designed urban flats that celebrate the wharf's original bricks and beams. Some have water-view balconies. "Redesigning Lewis Wharf became the most important project in my architectural career," said Koch in 1992. "I never got over the romance of that building … in spite of all the difficulties." Development had its risks: "That was one of the earliest adaptive-reuse projects in the city," said Keith Morgan, professor of American and European architecture at Boston University. "Many of those wharf buildings were white elephants. Koch's taking it on was sort of a brave act in those days." Koch also had a little-known weakness for mansard roofs and sculpted one here to add two floors to the original four.

There is nothing light or airy about this rough-hewn behemoth, but today, surrounded by boat slips and gelato shops, Lewis Wharf supports a light and airy lifestyle. And in the waters beyond the building's end, like lines on a faded map, are the stumps of wood pilings from storerooms that didn't quite make it.

The first architectural attempt to bring people to the waterfront for pleasure was the **New England Aquarium** (1969), the first commission for Cambridge Seven Associates. "When it all began," said Peter Chermayeff, principal-in-charge, "there was very little understanding of the waterfront." But an inspired collaboration between the Chamber of Commerce and the Boston Redevelopment Authority asked designers to envision a shoreline with mixed-use and public access, including a harborside walkway. "The city was coming alive with concerns for architecture and planning," said Chermayeff, and the aquarium was designed as a fulcrum of the reclamation process—even if he had to talk the client out of fears that a walkway would invite liability suits.

The building's formal connection to water is inside-out: Its cool, square, mostly blank concrete box conceals giant tanks full of life. Chermayeff said he was "somewhat guilty" of guiding the firm's most critical decision: making "the outer shell quite reticent, not an expressive, individualistic building [but] contextual—almost in the sense of a new warehouse, adding to the quite wonderful vocabulary of warehouse buildings all over the waterfront." Focusing on the interior, Cambridge Seven designed a "magic box" that would "take people out of the reality of the city into the fantasy of being in the sea." The closed façade was a planner's tease, pulling people east to peer within.

When it was time to add on, "new things were

CLOCKWISE FROM TOP LEFT Interior view of the water from the John F. Kennedy Presidential Library and Museum, © 2013 Roy Tennant; from Anderson Aquino, LLP, at Lewis Wharf, photo: Ben Gebo; from the Institute of Contemporary Art, photo: Megan Wethersfield; and from the New England Aquarium's mammal center, photo: Nathan Fried Lipski.

CLOCKWISE FROM TOP LEFT Exteriors of the John F. Kennedy Presidential Library and Museum, photo: Allan Goodrich, courtesy the JFK Library; Lewis Wharf, photo: Nina Henry; the Institute of Contemporary Art, photo: Brett Woodvine; and the New England Aquarium, photo: Andy Caulfield.

happening that were beginning to transform the waterfront vocabulary or context," Chermayeff said. "And so our new forms were exploding from the box and becoming a bit more transparent." The 2013 renovations, designed by Cambridge Seven and McManus Architects, continue that process by extending a translucent canopy toward the water's edge.

Down at Columbia Point, next to the University of Massachusetts/Boston, the **John F. Kennedy Presidential Library and Museum** (1979) took its waterfront site as a consolation prize. In 1964, the Kennedys chose I.M. Pei & Associates to design the complex at Harvard, on the Charles River just west of Boylston Street (now JFK Street). Ten years later, the project was mired in local opposition and the architects in a red-brick redesign. Devastated, the Kennedys repaired to UMass/Boston to retain some gravitas and add some salt air.

The initial plan on Columbia Point, said Ted Musho, Pei's associate partner on the project, was to make the building visible from the highway, an approach that might compensate for the loss of Harvard's sycamore allées. But when Pei tried to refine a site surrounded by water, said Musho, "it became very evident that when the tide goes down, all you've got is muck." Seeing one last alternative, Pei and Musho drove the Kennedys to the current site, where a sewage pipe gave way to a dump strewn with "elevators, rubber tires, you name it." As they strolled through the rubble with Jacqueline Kennedy Onassis, "up flies a pheasant out of the garbage, and that was taken as an omen," said Musho. He also had an ace up his sleeve: Under certain conditions, you could see the old Boston Light on Little Brewster Island. "All of the sailors in the crowd recognized the Boston lighthouse," he said. "They set up a sextant to look out and see exactly what the angle was, and there was great elation." Poetry saved the project.

Pei's square, space-framed tower became a windswept cathedral, its glass ceiling reaching toward "the canopy of space into which [Kennedy] launched us," Pei wrote. Outdoors, set against cost-cutting white concrete, the black tint of the glass strikes a harsh note; but indoors, it mutes the warm sun gently, whispering at once of the death of a young president and the loss of a great memorial.

The building now at the harbor's literal and cultural edge is Diller Scofidio + Renfro's **Institute of Contemporary Art** (2006), on Fan Pier. The museum's folded glass ribbon, cantilevered out to the shoreline,





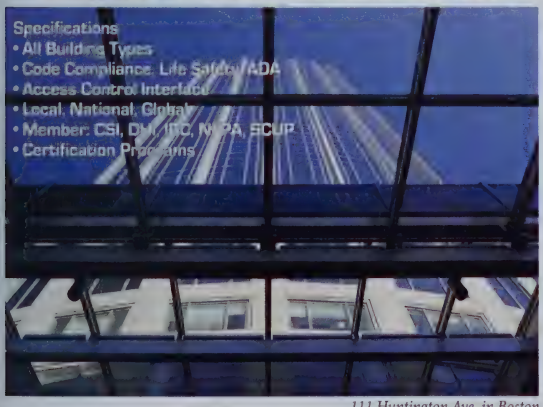
is in such intimate dialogue with the water that the interfaces are artworks themselves. Throughout the interiors, the view of the water is curated, culminating in the frameless glass wall of the fourth-floor Founders' Gallery, which all but dangles you off the tip of the cantilever.

"The waterfront is beautiful and dramatic and at odds with the mission of a museum, which is about looking inward and having a one-to-one relationship with art," said Charles Renfro. "Views and the drama of the site could actually prove distracting, and so it was literally the water itself that became the challenge: how to make the building be civic and dramatic and bold … but also be a great place to see art." Woven tightly into the HarborWalk, the museum invites passersby to roost in its womblike grandstand of Santa Maria hardwood.

In the century between the whip of clippers' sails and the raising of these modern landmarks, Bostonians and their toxic harbor mostly avoided each other. The aquarium and the refurbished Lewis Wharf began the shift from industrial to recreational use, and the JFK Library and ICA moved, with swaths of glass, to open jubilation. The people keep coming, and future coastal buildings will add both concepts and context. ■



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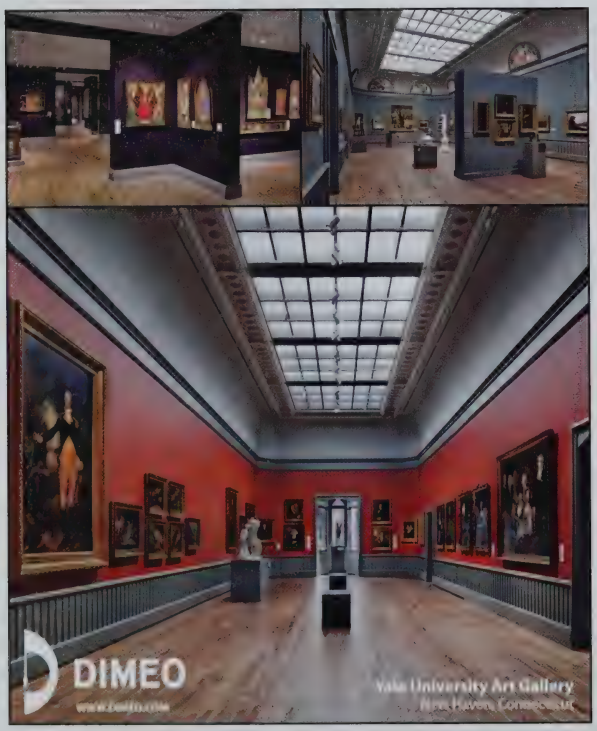




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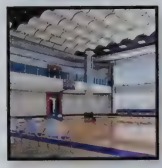
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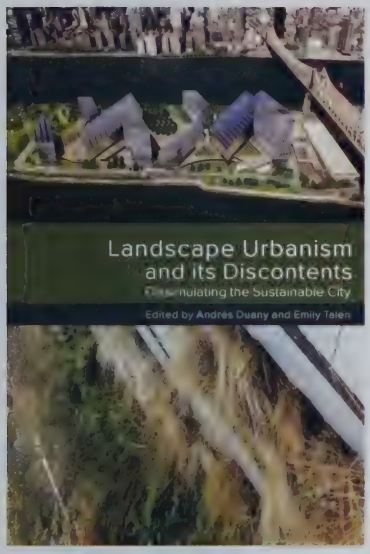
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Books



Landscape Urbanism and its Discontents
Andrés Duany and Emily Talen, editors
New Society Publishers, 2013
Reviewed by Alex Krieger FAIA

More than two decades ago, a group of young American architects, concerned by suburbanization and the accompanying disinvestment in cities, organized a campaign called the New Urbanism. For a couple of decades, with the gradual support of the planning community, zoning reformers, subdivision developers seeking a marketing edge, and substantial media attention, the New Urbanists held center stage in efforts to wean Americans from their capacious instincts to sprawl.

As a reformist movement, the New Urbanists positioned themselves against modern architecture, whose search for all things new they blamed for the turn away from traditional urban typologies, ultimately abetting sprawl. But now that the Congress for the New Urbanism is essentially mainstream, the founders have found a new enemy to combat. Thus this volume of essays, purporting to be a careful evaluation of a newer design movement called Landscape Urbanism.

Driven by a youthful vanguard, the Landscape Urbanists have been seeking to emerge from the shadow of architecturally dominated urban-design discourse, questioning the supposition that urbanism is the prerogative of those disciplines alone. They suggest that contemporary urban strategies might be found at the intersection of ecological awareness; infrastructure planning and engineering; recovery of industrially polluted ground; progressive social policy; and, indeed, the insights available to the landscape architect. Despite internal protestations against precursors, echoes of Ian McHarg, Rachel Carson, Benton MacKaye, Patrick Geddes, and even Frederick Law Olmsted may be discerned, along with others who have focused on environmental underpinnings for city design.

The Landscape Urbanist asserts that it is with the land that the planning and design of the modern metropolis must begin. Such a startling proposition becomes less revolutionary the moment one tours any contemporary metropolitan area from the air, noticing the infinitesimal amount of Nolli Map–like area to be found. Diverse forms of urban conditions exist, and each, they claim, must be approached without a predetermined solution for what constitutes the "urban," but with environmental stewardship in mind.

Many aspects of Landscape Urbanism rankle the New Urbanists, not least being the presence of a rival on the urbanism discourse scene. To be fair, the newer arrivals are rarely kind to the New Urbanists, often accusing them of a narrow approach to urban design, if not downright Luddism, by not acknowledging that settlement patterns, and responses to these, have become far more varied since the Industrial Revolution.

If the *Landscape Urbanism Reader*, published in 2006, was perceived by the New Urbanists as a shot across the bow in the brave fight for the soul of the 21st-century city, then this book is the (surprisingly delayed) response.

Several authors seek a measure of common ground. Among these are Doug Kelbaugh, Neal Payton, Daniel Solomon, and Nan Ellin. Others add insight from a broader cultural perspective, such as Jason Brody. The overall tone of the volume, however, exudes disdain. It begins with the book's title and the laudatory jacket blurbs: "This important collection of essays lays bare the comprehensive wrongheadedness at the foundation of Landscape Urbanist theory," opines the apparently discontented New Urbanist Jeff Speck. Then there is the chapter titled "The Zombies of Gund Hall Go Forth and Eat America's Brains." Howard Kunstler seems to imply that an academic institution set about to adopt a nonsensical intellectual position called Landscape Urbanism for the sole purpose of discrediting New Urbanism. So much for deep insight.

Instead, overstatement and clichéd bifurcation are found throughout the book and sadly mimic the broader debate among proponents of these two "urbanisms." Payton's sentence, while intended as parody, sums things up pretty well: "The Landscape Urbanists view the New Urbanism's concern with street types and 'place making' as hopelessly naïve and passé, whereas the New Urbanists view the Landscape Urbanist project as a sophisticated form of sprawl." How silly and disrespectful of both camps, yet accurate in describing the typical jabbering among the respective combatants.

So my suggestion is the following: Hole up at some fine urban venue with both the earlier *Landscape Urbanism Reader* and this volume. Wade through both with common sense chestnut-eliminating scissors at hand. Then ask of your Landscape Urbanist colleague: Is there no value still in the idea of a compact urban precinct such as those that have characterized urban places for millennia? And, turning to your favorite New Urbanist polemicist, ask: What precisely is troublesome about a supposition that the land and natural processes should be a primary consideration in contemporary urban design? Surely, the urban regions that now contain half of humanity, and soon more, can accommodate both perspectives—and a few others as well.

Alex Krieger FAIA is principal at NBBJ and has taught at Harvard's Graduate School of Design since 1977.



How Architecture Works
Witold Rybczynski
Farrar, Straus and Giroux, 2013
Reviewed by Emily Grandstaff-Rice AIA

In my first architectural history class, each student was given a brick along with an assignment to live with it for a week. This meant never letting it out of your sight and drawing it as much as possible. The goal was to personalize it and understand its essence. (Six residences later, my brick lives on my front porch.) All architects graduate with experiences that fundamentally shape how we understand architecture and materials that make our work more than just the sum of its parts. In *How Architecture Works*, Witold Rybczynski has created an educational journey for us, breaking down the elements of architecture to create a framework for the reader to build an understanding of how to see and feel things similar to how architects approach their work. It is both a toolkit for the reader and an author's journey to uncover a topic that cannot be conveyed in words only.

The book is loosely grouped into Fundamentals, Craft, and a philosophical discussion of style, history, and taste. As with my brick assignment, architecture is presented as an assemblage of elements, each with its own meaning, function, and spirit. Rybczynski delights in considering how architects bring these pieces and their permutations together. His approach was likely influenced by the freshman seminar class he taught at the University of Pennsylvania. A reader not familiar with the many building references may do well to keep Google handy. Still, the writing is approachable, so much so that I felt I was having a beer with my professor and hearing all the back stories.

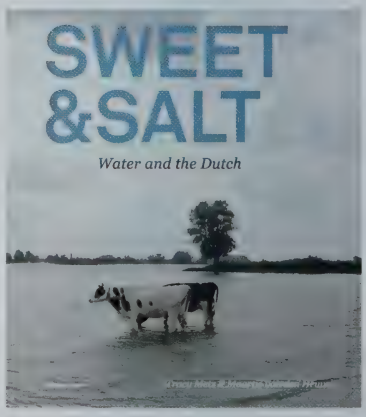
How Architecture Works is a contemporary response to Steen Eiler Rasmussen's *Experiencing Architecture*, a book the author studied during his own education. Following Rasmussen's example, Rybczynski writes only about buildings he visited personally—with two exceptions—and it is clear that the influences are predominantly Western architecture. The carefully selected images rightly focus on the built work of architects, not the architects as individuals. However, Rybczynski sometimes lapses into anecdotes about Le Corbusier's influential eyewear and the clothing preferences of architects. Missing is any discussion about the role of female architects, with only a few references to women currently in practice.

Rybczynski draws interesting parallels between how architects approach practice in the public realm and their own residences. The homes of Marc Appleton, Michael Graves, Frank Gehry, and Peter Bohlin provide insight to their professional approach to history and materiality. Rybczynski argues that architecture lasts longer than any fashion or popular cultural item, spanning generations; therefore, its longevity has great social impact. Although the practice of architecture may appear to be simply based on function and aesthetic, it is also a social practice. Architects learn their craft from other architects, and the author's focus on the personalities that create the buildings and the result of their creations strikes the right balance.

I fell into contemplative states as I read, attempting to reconcile my own concepts of architecture with Rybczynski's ideas. Then I realized that a great teacher presents you with just enough information to spark independent ideas. There are no judgments in his writing, only positions. Two exceptionally well-written chapters, "Detail" and "Style," gave me a renewed appreciation for the subtlety of details. Rybczynski stops short of providing answers, thankfully so.

The book opens with a quote from Ludwig Mies van der Rohe: "Architecture starts when you carefully put two bricks together. There it begins." Like my beloved brick, I consider *How Architecture Works* a useful item to add to my understanding of architecture.

Emily Grandstaff-Rice AIA is an associate at Cambridge Seven Associates and the president-elect of the Boston Society of Architects.



Sweet & Salt: Water and the Dutch
Tracy Metz and Maartje van den Heuvel
NAi Publishers, 2012
Reviewed by Matthew J. Kiefer

Is there a more mutable, more equivocal subject than water? It sustains life but also threatens it in ways large and small, from moldy basements to rampaging floods. Since Hurricanes Katrina and Sandy wrought their respective devastations, the effect of water on American cities has gained sudden urgency in an era of inexorable climate change.

Thus the appeal of *Sweet & Salt*. While learning to live with water may vex us now, it has informed the Dutch way of life for centuries. This thought-provoking book is not alarmist; in fact, its reassuring lesson is that, like the Dutch, we can face this challenge and even benefit from it.

Co-written by a journalist and an art historian, its title and its graceful combination of text and graphics hint at

several dualities within—not only fresh water and salt water but also land and sea, ecology and economy, nature and culture, and even art and life.

Especially in the delta that is Holland, the boundaries are blurrier than you might think. The Dutch are blurring them even further as they pioneer ways to accommodate water rather than resist it—measures such as opening dams, allowing low-lying polders to flood periodically, and building in and on the water.

The book is an outgrowth of a year that Metz, who sat on the Dutch government's second Delta Commission, spent as a Loeb Fellow at Harvard. This led to a two-year collaboration between Harvard students and the Dutch government on planning with and for water.

Metz's readable, policy-oriented chapters outline new planning and design approaches in the Netherlands. Water management is central to Dutch society, requiring the kind of communal action that helped gestate Dutch democracy in the 17th century. It culminated in the famed Delta Works, a gigantic series of dikes, locks, and dams built to protect Holland from the sea after the epic North Sea Flood in 1953.

A half-century later, the Delta Works needs augmentation, and in some cases reinvention, to address its unintended consequences: erosion and habitat destruction. Today's challenges include not just deciding how—or even whether—to keep salt water out but also how to keep fresh water in, for crops, industry, and drinking.

Metz's chapters alternate with chapters by her collaborator, van den Heuvel, who elucidates how intrinsic the Dutch relationship with water has been to its culture and self-conception as expressed in its art. Dutch iconoclasm upended the Christian tradition of depicting water as a symbol of sanctification and cleansing.

The Dutch, after all, invented not only landscape painting, in which the realistic landscape became the subject rather than the symbolic background, but also the very word "landscape," signifying a domain shaped by human hands. Fashioned from a river delta, the Dutch landscape is in fact uniquely malleable—a cultural artifact as well as a natural one.

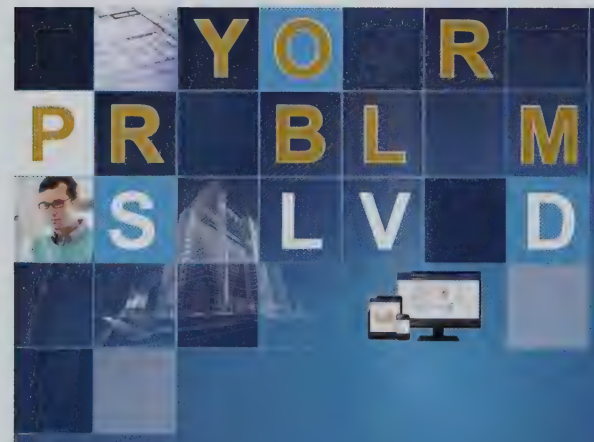
The syncopation of these chapters makes for an unusual experience: a beautiful book with important lessons. The well-chosen images enhance the resonance of the lessons, and the lessons in turn make the images even more arresting. Just as water has long found its way into Dutch art and cultural expression, Dutch cultural history is now finding its way into the design of new landscapes. In the end, *Sweet & Salt* provides the best antidote to alarmism. It's a testament to human ingenuity.

Matthew J. Kiefer is a land-use attorney at Goulston & Storrs. He teaches in the urban planning program at the Harvard Graduate School of Design.









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Designed to rise and fall with the tide, the proposed multifamily Floatyard housing complex in Charlestown, Massachusetts (above right), is the brainchild of architect Brian Healy and developer Ed Nardi. More like rise and shine.

Rising Waters
www.mcny.org/exhibition/rising-waters
To mark the one-year anniversary of Superstorm Sandy, the Museum of the City of New York mounted this haunting photographic reminder of what the natural world can visit upon the built world. On view through February 10, 2014.

Water World
www.remistudio.ru
The Ark Floating House project, by Russian architect Alexander Remizov, gives new meaning to the expression "living in a fishbowl." Click for English and "sustainable buildings."

Maya Lin: Here and There
www.pacegallery.com/newyork/exhibitions/12577/maya-lin
Architect Maya Lin turned her eye to New York's environmental landscape in recent work that used mapping to interpret waterways as dynamic forms. Her Pin River wall works, especially *Pin River Sandy*, are memorials of a sort to a drowned landscape.

Natural Resources Defense Council
www.nrdc.org/water/readiness
How well prepared is your city or state to handle a 100-year flood? The NRDC has the sobering news.

Rebuild by Design
www.rebuildbydesign.org
US Secretary of Housing and Urban Development (and Harvard Graduate School of Design alumnus) Shaun Donovan is heading up this ongoing competition to develop reconstruction and resiliency plans for the East Coast, from Maryland to Rhode Island. Among the local teams participating are Sasaki Associates and the MIT Center for Advanced Urbanism. ■

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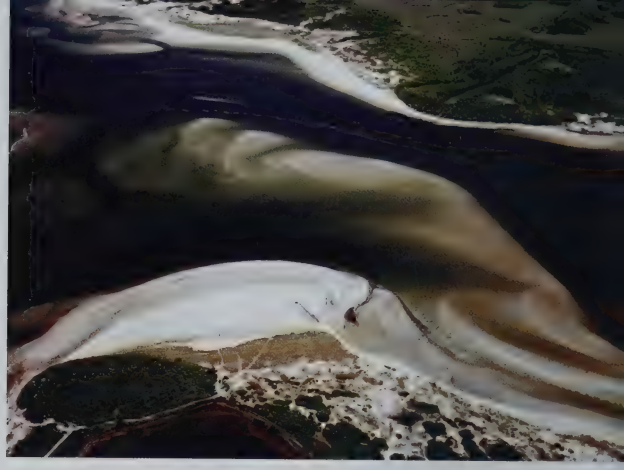


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Ebb Tide

William Sargent is the director of the Coastlines Project in Ipswich, Massachusetts. He has helped produce several films for the NOVA science series and is the author of four books about coastal erosion.

ABOVE
An aerial view, facing south, of Plum Island (foreground). Photo: Todd Lyon.

"The physics of sand is not rocket science; it may be even harder." —Albert Einstein, warning his son to steer clear of coastal geology.

It is a cool, crisp September day on Plum Island, Massachusetts. Evidence of change is everywhere.

The early morning sun glints off a gelatinous mass of squid eggs stranded in a sandy tidal pool. Last night millions of the fleshy mollusks congregated offshore to mate and lay their eggs. Males darted in and out of the school trying to herd individual females away from the pack. They had to grapple, struggle, and occasionally bite their opponents to secure an unattached female.

But this is a new ritual on this beach. Last year, 2012, was the first time that large numbers of squid started to swim north of Cape Cod to spawn. Global warming has finally warmed the oceans enough to cause such biological change.

There are other changes in this land. The sand dunes are shifting. In the spring the prevailing winds turned to the southwest, and now each incoming tide is repairing the beach from last winter's gales. It is a subtle process. Each wave stirs up a few sediments, suspends them in the water column, then redeposits them in a delicate filigree of sand grains a few inches down the beach. But the ultimate result is dramatic: Waves can return as much as 60 feet of sand from offshore sandbars to the beach in a single tidal cycle.

The sediments are also being transported to this spot from a reservoir of Paleolithic sand left by Ice Age glaciers. Unprotected by wide summer beaches, these drumlins had been exposed to the full fury of last winter's storms. Now the sand is being carried in longshore currents that travel parallel to the beach in the runnels that lie between the sandbars and the shore. It is this constant destruction and renewal that keep barrier beach islands healthy. As long as such a beach can move, pulsate, and grow, it can continue to reform and gradually migrate landward.

Changes also are occurring on a geological time scale. I am standing in the center of the island. In 1879, a beachcomber discovered the remains of a woolly mammoth protruding out of a 50-foot-high sand dune just east of here. The prevailing winds had been blowing the entire sand dune steadily landward, leaving the massive skull, leg bone, and backbone exposed. In this way, both winds and waves constantly cause barrier beaches and sand dunes to migrate by essentially rolling over themselves.

Ten thousand years ago, this woolly mammoth had been walking through an upland area covered with a half-mile of ice, snow, and emergent arctic vegetation. The sea level was 250 feet lower, and the coast was three miles further east.

But change was in the air. The atmosphere was warming, the glaciers were retreating, and the island itself was 3½ miles from its present location. It has been slowly migrating inland ever since, but in only the last 20 years has the rate of erosion increased from about two feet a year to 13 feet a year—enough to catch the attention of humans. Last winter, six houses pitch-poled down this dune, and 30 more were declared uninhabitable.

All the lost houses had been immediately downstream of man-made groins built to stop this beach from eroding. But a barrier beach is a living being; it *needs* to be able to grow. As long as a beach can move, it can repair itself after every storm. But once you build an immovable structure on a beach, you stop that flow of sand and doom the beach to the kind of destruction we witnessed last year.

Nature is telling us that there are no technological solutions to living on a barrier beach. You cannot force a beach to stop moving. We have to start thinking of leaving these fragile areas, so they can continue to protect the mainland from the full effects of sea-level rise. ■

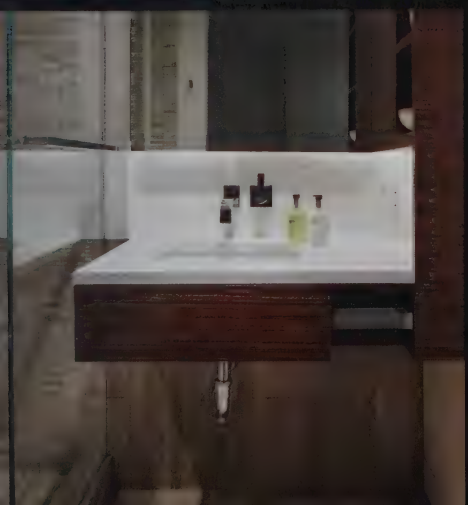


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